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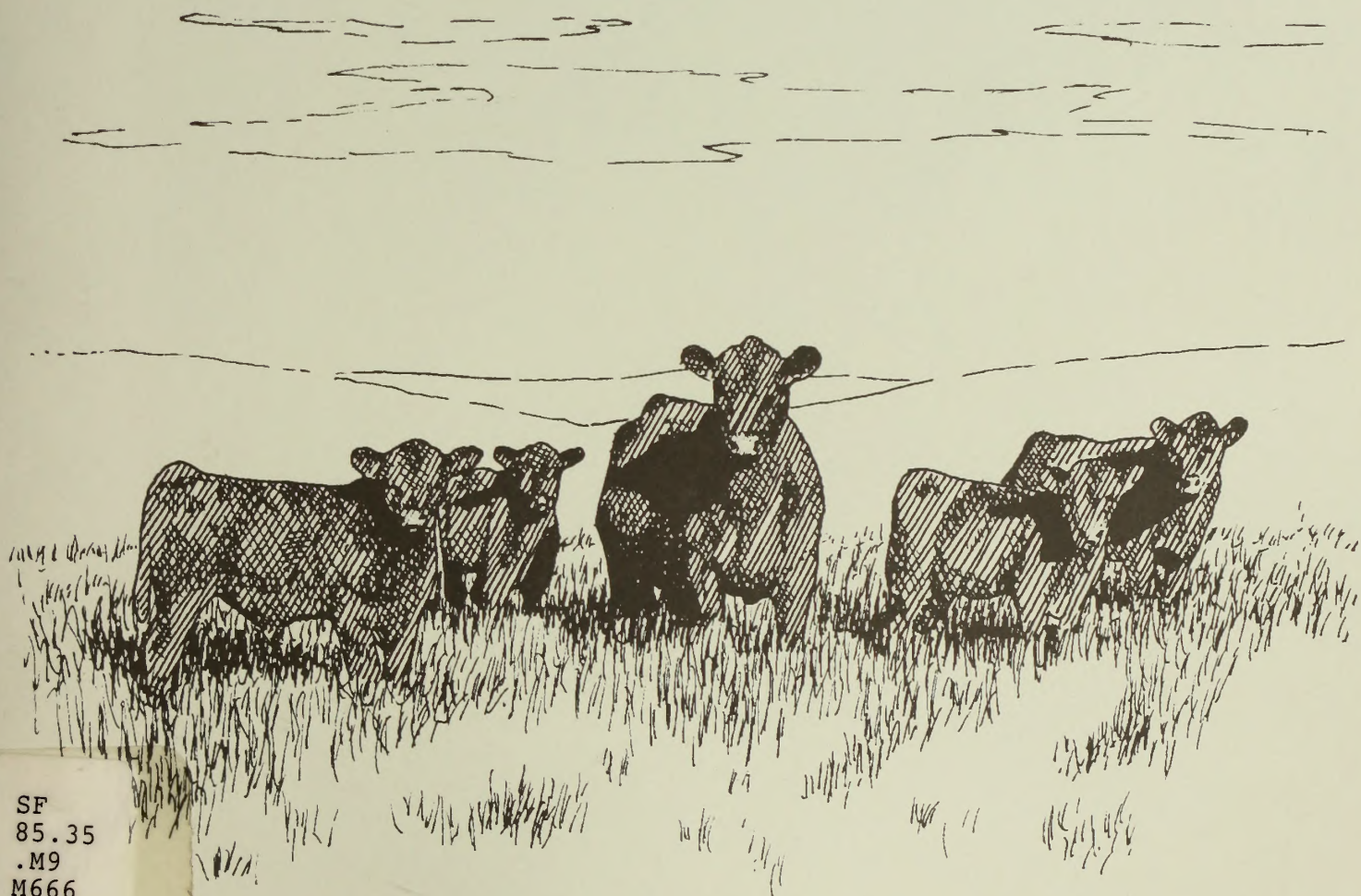
Montana State Office

May 1997

STANDARDS for Rangeland Health and GUIDELINES for Livestock Grazing Management Environmental Impact Statement



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The Bureau of Land Management is responsible for the stewardship of our public lands. It is committed to manage, protect, and improve these lands in a manner to serve the needs of the American people for all times. Management is based on the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation; rangelands; timber; minerals; watershed; fish and wildlife; wilderness; air; and scenic, scientific, and cultural values.

BLM/MT/PL-97/009+1020

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Montana State Office
222 North 32nd Street
P.O. Box 36800
Billings, Montana 59107-6800

IN REPLY TO:

4100

May 9, 1997

Dear Reader:

The Standards for Rangeland Health and Guidelines for Livestock Grazing Management, (Standards and Guidelines), Final Environmental Impact Statement (EIS) for Montana and North and South Dakota is presented for your information. This document incorporates by reference parts of the October 1996 Draft EIS and February 1997 Supplement to the Draft EIS for Standards and Guidelines.

The Final EIS, including the incorporated material, contains the following:

* a statement of the purpose and need for the action;
* a description of the alternatives, including the preferred alternative;
* a description of the affected environment;
* an analysis of the environmental consequences;
* an analysis of public comments on the draft and supplement to the draft EIS; and
* other items required by the Council on Environmental Quality Regulations

More than 2,000 copies of the Draft EIS and Supplement to the Draft EIS were distributed to federal agencies, state and local governments, congressional offices, livestock operators and companies, environmental organizations and many individuals concerned about the outcome of the Standards and Guidelines process. Copies of the Draft and Supplement to the Draft EIS are still available. Copies may be obtained by contacting BLM at (406) 255-2934 or your local Montana/Dakotas BLM office.

The Final EIS reflects modifications made to the Preferred Alternative (the Proposed Action as described in the Draft EIS) and changes to the text. These modifications do not change the scope of the Final EIS nor alter the analysis of environmental impacts. The changes made in this document reflect comments and suggestions from the public, BLM's Resource Advisory Councils (RACs), and internal review.

I am pleased with the public input on the Standards and Guidelines EIS. The final product represents a collaborative effort among all of the stakeholders in the public's rangelands.

If you would like more information or have questions regarding the Standards and Guidelines Final EIS, please contact Sandy Brooks, Project Manager, at (406) 255-2929.

Sincerely,

Francis R. Cherry, Jr.
Acting State Director

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STANDARDS
for Rangeland Health

and

GUIDELINES
for Livestock Grazing Management

on BLM-Administered Lands
in Montana and the Dakotas

FINAL Environmental Impact Statement

Prepared by the Bureau of Land Management
Montana State Office
May, 1997

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ABSTRACT

Standards for Rangeland Health and Guidelines for Livestock Grazing Management in Montana, North Dakota and South Dakota

Environmental Impact Statement

Draft ( ) Final (X)

United States Department of the Interior, Bureau of Land Management (BLM)

1. Type of Action: Administrative (X) Legislative ( )

2. Abstract: This environmental impact statement (EIS) documents the effects of adopting regional standards for rangeland health and guidelines for livestock grazing management on BLM-administered lands in Montana, North Dakota and South Dakota. The Preferred Alternative described in the final EIS is the Proposed Action analyzed in the draft EIS (Alternative 2) with changes set forth in this document. The changes reflected in the Preferred Alternative are within the scope and analysis of the draft EIS, and do not alter the analysis of the environmental consequences. The changes reflected in the Preferred Alternative are a result of public comment and input from the four Resource Advisory Councils (RACs). Three alternatives were considered in the final EIS: Continuation of Current Management; the Preferred Alternative; and the Fallback Standards and Guidelines.

This document incorporates the draft EIS and the supplement to the draft EIS by reference, except as noted. The final EIS, including the incorporated material, contains the following:

- a statement of the purpose and need for the action,
- a description of alternatives, including the preferred alternative,
- a description of the affected environment,
- an analysis of environmental consequences,
- an analysis of public comments on the draft EIS and supplement to the draft EIS, and
- other sections required by the Council on Environmental Quality regulations.

3. For further information contact:

Sandy Brooks, Project Manager
Montana State BLM Office
PO Box 36800
Billings, MT 59107-6800
(406) 255-2929

SUMMARY

This is the Standards for Rangeland Health and Guidelines for Livestock Grazing Management Final Environmental Impact Statement (EIS). The EIS describes the environmental impacts that would result from a number of alternatives for managing BLM-administered rangeland, including the proposed standards for rangeland health and guidelines for livestock grazing management (standards and guidelines or S&Gs) on BLM-administered lands in Montana, North Dakota and South Dakota. This EIS is written to evaluate a range of reasonable alternatives and to present the results of the environmental analysis in a form that best informs the public and serves the needs of the decision maker.

The final EIS, including the incorporated material, was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA). It is combined with and incorporates by reference the draft EIS and supplement to the draft EIS (supplement), except as noted.

The Preferred Alternative described in the final EIS is the Proposed Action analyzed in the draft EIS and supplement with changes set forth in this document based on information and suggestions raised through public comment, Resource Advisory Council (RAC) input, and internal review. The modifications included in the Preferred Alternative neither change the scope of the final EIS nor alter the analysis of environmental impacts. The final EIS is comprised of this document combined with the draft EIS and supplement which is incorporated by reference, in accordance with 40 CFR 1500.4(j) and (o), 1502.21 and 1506.4. Text changes to the draft EIS and supplement are included in Chapter 5 of the final EIS. Thus, consistent with CEQ regulations on paperwork reduction, the draft EIS and supplement have not been reprinted, and it is necessary to use the draft EIS and supplement with this document.

Of the approximately 920 allotments (out of a total of 5320 allotments within the EIS study area) which presently appear to not be meeting or making significant progress toward one or more of the proposed standards, approximately 650 would be subject to future changes in livestock grazing management as a result of existing land use policies and plan decisions.

Approximately 270 grazing allotments are likely to be directly affected by implementation of S&Gs during the foreseeable future. These are allotments which presently are being managed in conformance with existing RMP and MFP guidance, but which appear to not be meeting or making significant progress toward one or more of the proposed standards. Therefore, some type of change in livestock grazing management will be required solely as a result of S&G implementation. The most common types of change expected are in grazing systems and season of use. Approximately 80 allotments may require reductions in livestock use and/or exclusions of portions of allotments from livestock grazing. A net reduction of approximately 9000 livestock AUMs (out of a total of about 1.4 million AUMs within the study area) is projected as a direct result of S&G implementation.

In order to implement the Preferred Alternative, the BLM Montana State Office will issue a record of decision 30 days after the final EIS Notice appears in the Federal Register. When the record of decision is signed on the Montana/Dakotas Standards and Guidelines Final EIS, it will apply to lands west of the Continental Divide (in Montana), until the Interior Columbia Basin Ecosystem Management Project (ICBEMP) is completed. At that time, the ICBEMP decision will supersede the Montana/Dakotas Standards and Guidelines on lands west of the Continental Divide in Montana.

DIFFERENCES BETWEEN THE DRAFT/SUPPLEMENT TO THE DRAFT AND FINAL EIS

The Preferred Alternative described in the final EIS is Alternative 2 - the Proposed Action, as described in the draft EIS with modifications set forth in this document. The changes reflected in the Preferred Alternative are within the scope and analysis of the draft EIS and supplement to the draft EIS and do not alter the analysis of the environmental consequences.

The Preferred Alternative described in the final EIS contains changes to the Proposed Action described in the draft EIS. Chapter 2 of this final EIS presents the Preferred Alternative and changes to Guidance Common to All Alternatives.

Chapter 5 of this document contains changes to the text of the draft EIS made in response to public comments. These changes are incorporated into the final EIS. They do not alter the analysis of the environmental consequences.

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CHAPTER 1
PURPOSE OF AND NEED FOR THE PREFERRED ALTERNATIVE

Chapter 1 of the draft EIS and supplement to the draft EIS for Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana and the Dakotas is incorporated by reference, in accordance with 40 CFR 1500.4(j) and (o), 1502.2 and 1506.4 with changes set forth in Chapter 5 of this document. The incorporated material can be found at pages 1 through 4 in the draft EIS and pages 1 and 2 of the Supplement to the draft EIS. The content is briefly summarized below.

PURPOSE AND NEED

The BLM proposes to modify resource management plans (RMPs) and management framework plans (MFPs) in the Montana/Dakotas, by establishing regional standards for rangeland health and guidelines for livestock grazing management, in accordance with regulations governing BLM administration of livestock grazing on public lands (43 CFR 4180).

Standards are physical or biological conditions or functions required for healthy, sustainable rangelands. The purpose for standards is to establish minimum required conditions for public lands within broad geographic areas. They address watershed function; nutrient cycling and energy flow; water quality; habitat for endangered, threatened, proposed or special status species; and habitat quality for native plant and animal populations and communities.

Guidelines are management practices or methods which help ensure that standards can be met or significant progress can be made toward meeting standards. The preferred guidelines address, as required, the following:

(1) Maintaining or promoting adequate amounts of vegetative ground cover, including standing plant material and litter, to support infiltration, maintain soil moisture storage, and stabilize soils;

(2) Maintaining or promoting subsurface soil conditions that support permeability rates appropriate to climate and soils;

(3) Maintaining, improving or restoring riparian-wetland functions including energy dissipation, sediment capture, groundwater recharge, and stream bank stability;

(4) Maintaining or promoting stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions appropriate to climate and landform;

(5) Maintaining or promoting the appropriate kinds and amounts of soil organisms, plants and animals to support the hydrologic cycle, nutrient cycle, and energy flow;

(6) Promoting the opportunity for seedling establishment of appropriate plant species when climatic conditions and space allow;

(7) Maintaining, restoring or enhancing water quality to meet management objectives, such as meeting wildlife needs;

(8) Restoring, maintaining or enhancing habitats to assist in the recovery of Federal threatened and endangered species;

(9) Restoring, maintaining or enhancing habitats of Federal Proposed and other special status species to promote their conservation;

(10) Maintaining or promoting the physical and biological conditions to sustain native populations and communities;

(11) Emphasizing native species in the support of ecological function; and

(12) Incorporating the use of non-native plant species only in those situations in which native species are not available in sufficient quantities or are incapable of maintaining or achieving properly functioning conditions and biological health.

S&Gs will be implemented on the ground through future BLM decisions and management actions, and through the actions of BLM permittees and lessees. S&Gs may be implemented at a variety of levels or scales, through watershed or landscape plans, allotment management plans, project plans, through terms and conditions attached to leases and permits, and by taking other appropriate actions where existing grazing management practices or levels of grazing use on public lands are significant factors in failing

to achieve the standards and conform with the guidelines. Site-specific implementation decisions will comply with applicable planning and environmental analysis requirements, and will be tiered to the analysis documented in the Draft and Final EIS.

STUDY AREA

The area covered by this analysis includes all BLM-administered lands in Montana, North Dakota and South Dakota. This totals approximately 8.4 million acres.

When the record of decision is signed on the Montana/Dakotas Standards and Guidelines Final EIS, it will apply to lands west of the Continental Divide (in Montana), until the Interior Columbia Basin Ecosystem Management Project (ICBEMP) is completed. At that time, the ICBEMP decision will supersede the Montana/Dakotas Standards and Guidelines on lands west of the Continental Divide in Montana.

CHAPTER 2
THE PREFERRED ALTERNATIVE

Chapter 2 of the draft EIS and supplement to the draft EIS for Standards for Rangeland Health and Guidelines for Livestock Grazing are incorporated by reference, in accordance with 40 CFR 1500.4(j) and (o), 1502.2 and 1506.4. The incorporated material can be found on pages 5 through 26 of the draft EIS and pages 3 through 8 of the supplement to the draft EIS. The content is briefly summarized below. Those pages in the draft EIS and supplement to the draft EIS related to the Proposed Action are superseded and updated by the discussion of the Preferred Alternative contained in this chapter.

The Preferred Alternative is Alternative 2 which appeared in the draft EIS as the Proposed Action. The changes reflected in the Preferred Alternative are within the scope and analysis of the draft EIS, and do not alter the analysis of the environmental consequences. The Preferred Alternative presented in this final EIS reflects modifications to the original proposed action based on public comment and agency review.

GUIDANCE COMMON TO ALL ALTERNATIVES

The following management guidance applies to each of the alternatives studied in detail.

Threatened, Endangered, and Sensitive Species Habitat

No activities will be permitted in habitat for threatened and endangered species that would jeopardize the continued existence of such species. The U.S. Fish and Wildlife Service (USFWS) has concurred with the determination that no adverse affects to listed species will occur (refer to Appendix L for the USFWS Letter of Concurrence). The USFWS would be consulted prior to implementing specific projects that may affect threatened and endangered species.

Habitats for threatened and endangered and special status species would also be managed for recovery and protection. Recovery plans and other appropriate guidance will be developed and implemented, including the Interagency Grizzly Bear Guidelines (Appendix B in the draft EIS), the Montana Bald Eagle Management Plan, the Montana Fluvial Arctic Grayling Restoration Plan, the Montana Prairie Dog Management Guidelines, and management guidelines for Bull trout and Yellowstone and Westslope cutthroat trout habitat.

Native Species Habitat

BLM may allocate areas of public rangeland that would be managed to provide habitat for those native wildlife species requiring special ecosystem considerations, such as bare ground and/or low grass. Examples of these species include the mountain plover, black-footed ferret, prairie dog and burrowing owl. While it may at first appear that there is a conflict between managing for healthy ecosystems and managing for "bare ground species", when public lands are managed for these species, consideration of the functionality of the system as a whole will reveal that there is actually not a conflict.

In managing for objectives that include these species, a manager must consider the range of natural variation in the surface conditions of prairie ecosystems as a whole. Judgements about land health must be applied at the proper scale to consider the functioning condition of the landscape containing these special management areas. When this is done, the system would be considered to be properly functioning only if it does have enough of these habitats to provide diversity in native plant and animal species. Key to determining health of these systems is the determination that there is neither too much, nor too little, of these surface conditions to fall within the range of natural variation within that specific ecosystem.

Noxious Weed Management

The highest priority will be placed on preventing the spread of noxious weeds into weed-free areas, particularly areas with high to moderate ecological risk from weed invasions. BLM activities and authorizations will be reviewed and modified where necessary to minimize the spread of noxious weeds. Where noxious weeds are established, priority will be given to the use of effective, nonchemical methods of weed control, when and where feasible. Herbicides will generally be used only after considering the effectiveness of all potential methods, or in combination with other methods or controls.

Cultural Resources

Proposed range improvements and other activities on federal land are subject to Section 106 of the National Historic

Preservation Act (NHPA), which requires that agencies consider the effects of federal undertakings on cultural resources through a step-by-step process. If conflicts are anticipated between a proposed activity and a historic property, an effort will be made to avoid the property through project redesign or cancellation. If a project cannot be redesigned and it has great merit, an effort will be made to mitigate the effect of the project on the property.

Where BLM activities may impact areas of cultural or religious importance to Native Americans, the BLM will consult with those groups under the American Indian Religious Freedom Act (AIRFA), the Religious Freedom Restoration Act (RFRA), and the NHPA, if appropriate, to ensure that impacts to these groups are minimized.

ALTERNATIVE 1 - NO ACTION (CONTINUATION OF CURRENT MANAGEMENT)

The no action alternative does not fully address the purpose and need, but provides a benchmark against which to evaluate the other alternatives.

Livestock grazing management on BLM-administered lands within the EIS area is presently subject to decisions documented in nine RMPs and one MFP. In addition, many existing land use plans incorporate decisions resulting from previous grazing EISs.

These land use plans and grazing EISs were prepared over a period of 18 years (1979-1996) and cover a wide geographic area. Each plan reflects grazing-related policies and practices that were in effect at the time it was prepared. Grazing-related decisions in existing land use plans are prioritized annually for implementation. The rate of implementation depends on funding, staffing, and competing priorities.

ALTERNATIVE 2 - PREFERRED ALTERNATIVE

Resource Advisory Councils (RACs) in the MT/DAKs were instrumental in developing the following proposed S&Gs. A S&G discussion paper was prepared by BLM staff and used by RAC members as a starting point for their deliberations. Comments received from the general public during scoping were also considered during S&G development.

The proposed S&Gs would be applied to all BLM-administered lands within the Butte, Lewistown, Miles City and Dakotas Districts, including lands acquired in the future. The water quality standards (Appendix C in the draft EIS) and air quality standards (Appendix D in the draft EIS) referenced by the RACs were provided in the draft. The S&Gs for each district are provided in the following sections.

Butte District

Preamble

The Butte Resource Advisory Council (BRAC) has developed standards for rangeland health and guidelines for grazing management for use on the Butte District of the Bureau of Land Management (BLM). The purpose of the S&Gs are to facilitate the achievement and maintenance of healthy, properly functioning ecosystems within the historic and natural range of variability for long-term sustainable use.

BRAC determined that the following considerations were very important in the adoption of these S&Gs:

1. For implementation, the BLM should emphasize a watershed approach that incorporates both upland and riparian standards and guidelines.

2. The standards are applicable to rangeland health, regardless of use.

3. The social and cultural heritage of the region and the viability of the local economy, are part of the ecosystem.

4. Wildlife is integral to the proper function of rangeland ecosystems.

Standards

Standards are statements of physical and biological condition or degree of function required for healthy sustainable rangelands. Achieving or making significant progress towards these functions and conditions is required of all uses of public rangelands as stated in 4180.1. Baseline, monitoring and trend data, when available, should be utilized to assess compliance with Standards.

Butte Standard #1: Uplands are in proper functioning condition.

As addressed by the preamble to these standards and as indicated by:

Physical Environment

- erosional flow patterns
- surface litter
- soil movement by water and wind
- soil crusting and surface sealing
- compaction layer
- rills
- gullies
- cover amount
- cover distribution

Biotic Environment

- community diversity
- community structure
- exotic plants
- photosynthesis activity
- plant status
- seed production
- recruitment
- nutrient cycle

The determination of rangeland health should be based on the evaluation of three criteria: degree of soil stability and watershed function, nutrient cycles and energy flows, and available recovery mechanisms.

Indicators to assess soil stability and watershed function relate to two fundamental processes of watershed degradation: (1) Soil erosion by wind and water and (2) Infiltration or capture and utilization of precipitation. Indicators such as: rills, gullies, flow patterns, pedestaling and compaction, may be used to assess watershed condition.

Indicators that can be used to evaluate nutrient cycles and energy flows relate to distribution of plants, litter, roots, and photosynthetic period; i.e., plant community diversity and structure, exotic plants, photosynthetic activity and plant status.

Recovery mechanisms or plant demographic indicators may include increasing vegetative cover, plant vigor, kind and number of seedlings, and changes in plant age distribution.

• Physical environmental features of a proper functioning watershed are indicated by:

-little evidence of soil erosion by wind and/or water.
-rills, gullies, pedestaling, flow patters are not present (significant).
-surface sealing and soil crusting is not evident.
-plant (ground) cover and litter accumulation is adequate to protect site.
-natural disturbance events are integral to proper ecosystem function.

• Biotic environment features of a proper functioning watershed are indicated by:

-variety and number of plant life-forms (grass, forb, shrub, tree, succulent) across the site.
-plants exhibit a good diversity of size, height, distribution, and age/class well distributed.
-exotic plants, weeds are absent or sparse on site.
-plants display normal growth and root development.
-photosynthesis activity occurs throughout the site.
-plants are alive, productive with well developed root systems.
-seed stalks/seed adequate for stand maintenance for all life-forms.
-litter distribution and incorporation is uniform across site.
-nutrient/energy cycle mechanisms are adequate for plant maintenance.

Butte Standard #2: Riparian and wetland areas are in proper functioning condition.

As addressed by the preamble to these standards and as indicated by:

Hydrologic

- floodplain inundated in relatively frequent events (1-3 years)
- amount of altered streambanks
- sinuosity, width/depth ratio, and gradient are inbalance with the landscape setting (i.e., landform, geology, and bioclimatic region)
- riparian zone widening
- upland watershed not contributing to riparian degradation

Erosion Deposition

- floodplain and channel characteristics; i.e., rocks, coarse and/or woody debris adequate to dissipate energy
- point bars are vegetating
- lateral stream movement is associated with natural sinuosity
- system is vertically stable
- stream is in balance with water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)
- bare ground

Vegetation

- reproduction and diverse age structure of vegetation
- diverse composition of vegetation
- species present indicate maintenance of riparian soil moisture characteristics
- streambank vegetation is comprised of those plants or plant communities that have deep binding root masses capable of withstanding high streamflow events
- utilization of trees and shrubs
- riparian plants exhibit high vigor
- adequate vegetative cover present to protect banks and dissipate energy during high flows
- plant communities in the riparian area are an adequate source of large woody debris

Broadly, "proper functioning condition" may be defined as the ability of a stream to perform its riparian functions. These functions include sediment filtering, bank building, water storage, aquifer recharge, and hydrologic energy dissipation.

No **single factor** or characteristic of a riparian site can provide a complete picture of either that site's condition or the direction of its successional change. Things considered "negative" in traditional evaluations of ecological sites may not be such for riparian sites. For example, the percent of exposed soil surface, which often reflects overgrazing or erosion on upland sites, may be a result of normal riparian activity; sediment deposition resulting after spring runoff, or a high water event.

Hydrology\Streambanks

The hydrology of a riparian area is perhaps its most important characteristic. Changes in hydrology may result in short and long term vegetative changes. In some situations, construction (rip rap, roads, railroads, etc.) has influenced the streambanks and stability has been increased over the natural levels. These streambanks may eventually lose their stability, and become altered. This generally occurs if the problems which caused the weak streambanks **have not been remedied**. Also, constructed streambanks (especially those with rip rap) will often disrupt the normal energy dissipation of the stream and eventually the meandering of a stream can result in the erosion of streambanks downstream.

Lateral Cutting

Lateral cutting is indicated by new stream-caused bank disruption along the outside of stream curves, and much less commonly along the straight portions of a stream. A high degree of active lateral cutting can indicate a degraded watershed.

Altered Streambanks

In many instances, land uses have degraded streambanks, accelerating stream movement across the floodplain. We define altered streambanks as those having impaired structural integrity (strength or stability) due to human-caused activities such as exposed soil surfaces from cattle trails and wallows, hiking and ATV trails, roads, logging skid trails, mining activities, etc.

Deep Binding Root Mass

Properly functioning streambanks are "armored by both vegetation and bank rock materials (e.g., boulders and cobbles). There have been few studies documenting the depth and extent of root systems of various plant species. Despite this lack of documented evidence, some generalizations can be made. **All** tree and shrub species are considered to have deep, binding root masses. Among riparian **herbaceous species**, the first rule is that **annual plants do not** have deep, binding root masses. Perennial species offer a wide range of root mass qualities. Some rhizomatous species such as the deep-rooted sedges are excellent streambank stabilizers. Other rhizomatous species, such as Kentucky bluegrass have only shallow root systems and are poor streambank stabilizers. Still others, such as Baltic rush appear to be intermediate in their ability to stabilize banks.

Downcutting

Active downcutting of a stream is often hard to recognize. Perched wetland vegetation and streambank features, plus the lack of a separate layer of channel bottom materials (i.e., the stream flows directly on the substrate materials), can be clues to downcutting. A stream is incised when downcutting of the stream has resulted in a width to depth ratio so low that average 2-year floods do not come out of the banks.

Soils/Geology

The soils and geology (landform and parent material) of a riparian site influence how the site reacts to disturbances and changes over time. Changes in physical characteristics are often (but not always) more difficult to remedy through management actions than are vegetative changes. The depth and texture of soil, of a riparian site, influences the capacity of that site to hold water (act as a sponge) for prolonged late season flows and support desired vegetation.

Bare ground

Exposed soil surface is important in evaluating the health of riparian areas for several reasons: 1) vulnerability to erosion; 2) it may contribute to, as well as reflect, streambank deterioration; 3) the more exposed soil, the less vegetation is available for soil protection and sediment entrapment;

and 4) exposed soil provides opportunity for invasion by noxious weeds and undesirable species.

Vegetation

Because they are more visible than soil or hydrological characteristics, plants may provide early indications of riparian health.

Reproduction of Trees and Shrubs

One of the clearest indicators of ecological stability, and subsequent health, is the presence of all age classes (seedling, sapling, pole, mature, decadent, and dead) of tree and shrub species where the potential exists.

Dead and Decadent Trees and Shrubs

The amount of dead and decadent material in trees and shrubs is another indicator of the overall "health" of riparian areas. Large amounts of decadent and dead woody material can indicate severe stress due to high levels of browsing, and/or dewatering of the site from artificial or natural causes. If severe enough, this may change the potential from a riparian to an upland site. Large amounts of decadent and dead woody material may indicate fluctuations in climate, such as severe winter temperatures, spring freezes, or insect infestations. In all cases, the overall biotic health is effected which may have implications on physical features of a stream such as streambank integrity, channel incisement, and lateral cutting.

Utilization of Trees and Shrubs

Heavy utilization by livestock and/or wildlife can prevent the regeneration or establishment of woody species and, thus block succession of the plant community toward a later seral stage. As with herbaceous species, excessive use of these woody species may cause their elimination from the site and their replacement by disturbance-induced species or undesirable invaders.

Plant Composition

The presence of disturbance-induced herbaceous plants (either native or introduced) may indicate that the site could be more healthy and thus is not performing its optimum riparian functions. Most of these species provide less soil holding and sediment trapping capability, and less desirable forage for livestock and wildlife.

Butte Standard #3: Water quality meets state standards.

As addressed by the preamble to these standards and as indicated by:

- dissolved oxygen concentration
- pH
- turbidity
- temperature
- fecal coliform
- sediment
- color
- toxins
- other parameters: ammonia, barium, boron, chlorides, chromium, cyanide, endosulfan, lindane, nitrates, phenols, phosphorus, sodium, sulfates, etc.

When discussing rangeland health, water quality is a relative term which must be associated with water-use to become meaningful. Since the beginning of time, natural processes have influenced the chemical, physical, and biological characteristics of water. The natural quality of water varies from place to place, with the season of the year, with the climate, and with the kind of rock and soil through which water moves. After reaching the earth, water dissolves minerals from the earth's crust, percolates through organic materials such as roots and leaves, and reacts with living things such as microscopic organisms like plankton and algae. Natural water quality is changed by stream sediments; it is modified by temperature, soil bacteria, and evaporation. These and other factors determine the quality of natures "unpure" water.

Water quality criteria specifies concentrations of water constituents which, if not exceeded, are expected to support an aquatic ecosystem suitable for higher uses of water. Water quality criteria are intended to protect essential and significant life in water, as well as the direct users of water, and also to protect life that is dependent on life in water for its existence.

Some of the common indicators of water quality are:

Dissolved oxygen concentration (DO) - is a function of temperature of the water, altitude and barometric pressure. The ability of water to hold oxygen decreases with the increases in temperature, altitude and dissolved solids (TDS). This is important in fish spawning areas where DO levels must be maintained at specific levels for good growth and general well being of fish and associated biota.

pH (hydrogen-ion concentration) - is an indicator of acidity and/or alkalinity and an index of hydrogen-ion activity. Lower values indicated acid, higher values

Vegetation

- reproduction and diverse age structure of vegetation
- diverse composition of vegetation
- species present indicate maintenance of riparian soil moisture characteristics
- streambank vegetation is comprised of those plants or plant communities that have deep binding root masses capable of withstanding high streamflow events
- utilization of trees and shrubs
- riparian plants exhibit high vigor
- adequate vegetative cover present to protect banks and dissipate energy during high flows
- plant communities in the riparian area are an adequate source of large woody debris

Broadly, "proper functioning condition" may be defined as the ability of a stream to perform its riparian functions. These functions include sediment filtering, bank building, water storage, aquifer recharge, and hydrologic energy dissipation.

No **single factor** or characteristic of a riparian site can provide a complete picture of either that site's condition or the direction of its successional change. Things considered "negative" in traditional evaluations of ecological sites may not be such for riparian sites. For example, the percent of exposed soil surface, which often reflects overgrazing or erosion on upland sites, may be a result of normal riparian activity; sediment deposition resulting after spring runoff, or a high water event.

Hydrology\Streambanks

The hydrology of a riparian area is perhaps its most important characteristic. Changes in hydrology may result in short and long term vegetative changes. In some situations, construction (rip rap, roads, railroads, etc.) has influenced the streambanks and stability has been increased over the natural levels. These streambanks may eventually lose their stability, and become altered. This generally occurs if the problems which caused the weak streambanks **have not been remedied**. Also, constructed streambanks (especially those with rip rap) will often disrupt the normal energy dissipation of the stream and eventually the meandering of a stream can result in the erosion of streambanks downstream.

Lateral Cutting

Lateral cutting is indicated by new stream-caused bank disruption along the outside of stream curves, and much less commonly along the straight portions of a stream. A high degree of active lateral cutting can indicate a degraded watershed.

Altered Streambanks

In many instances, land uses have degraded streambanks, accelerating stream movement across the floodplain. We define altered streambanks as those having impaired structural integrity (strength or stability) due to human-caused activities such as exposed soil surfaces from cattle trails and wallows, hiking and ATV trails, roads, logging skid trails, mining activities, etc.

Deep Binding Root Mass

Properly functioning streambanks are "armored by both vegetation and bank rock materials (e.g., boulders and cobbles). There have been few studies documenting the depth and extent of root systems of various plant species. Despite this lack of documented evidence, some generalizations can be made. **All** tree and shrub species are considered to have deep, binding root masses. Among riparian **herbaceous species**, the first rule is that **annual plants do not** have deep, binding root masses. Perennial species offer a wide range of root mass qualities. Some rhizomatous species such as the deep-rooted sedges are excellent streambank stabilizers. Other rhizomatous species, such as Kentucky bluegrass have only shallow root systems and are poor streambank stabilizers. Still others, such as Baltic rush appear to be intermediate in their ability to stabilize banks.

Downcutting

Active downcutting of a stream is often hard to recognize. Perched wetland vegetation and streambank features, plus the lack of a separate layer of channel bottom materials (i.e., the stream flows directly on the substrate materials), can be clues to downcutting. A stream is incised when downcutting of the stream has resulted in a width to depth ratio so low that average 2-year floods do not come out of the banks.

Soils/Geology

The soils and geology (landform and parent material) of a riparian site influence how the site reacts to disturbances and changes over time. Changes in physical characteristics are often (but not always) more difficult to remedy through management actions than are vegetative changes. The depth and texture of soil, of a riparian site, influences the capacity of that site to hold water (act as a sponge) for prolonged late season flows and support desired vegetation.

Bare ground

Exposed soil surface is important in evaluating the health of riparian areas for several reasons: 1) vulnerability to erosion; 2) it may contribute to, as well as reflect, streambank deterioration; 3) the more exposed soil, the less vegetation is available for soil protection and sediment entrapment;

and 4) exposed soil provides opportunity for invasion by noxious weeds and undesirable species.

Vegetation

Because they are more visible than soil or hydrological characteristics, plants may provide early indications of riparian health.

Reproduction of Trees and Shrubs

One of the clearest indicators of ecological stability, and subsequent health, is the presence of all age classes (seedling, sapling, pole, mature, decadent, and dead) of tree and shrub species where the potential exists.

Dead and Decadent Trees and Shrubs

The amount of dead and decadent material in trees and shrubs is another indicator of the overall "health" of riparian areas. Large amounts of decadent and dead woody material can indicate severe stress due to high levels of browsing, and/or dewatering of the site from artificial or natural causes. If severe enough, this may change the potential from a riparian to an upland site. Large amounts of decadent and dead woody material may indicate fluctuations in climate, such as severe winter temperatures, spring freezes, or insect infestations. In all cases, the overall biotic health is effected which may have implications on physical features of a stream such as streambank integrity, channel incisement, and lateral cutting.

Utilization of Trees and Shrubs

Heavy utilization by livestock and/or wildlife can prevent the regeneration or establishment of woody species and, thus block succession of the plant community toward a later seral stage. As with herbaceous species, excessive use of these woody species may cause their elimination from the site and their replacement by disturbance-induced species or undesirable invaders.

Plant Composition

The presence of disturbance-induced herbaceous plants (either native or introduced) may indicate that the site could be more healthy and thus is not performing its optimum riparian functions. Most of these species provide less soil holding and sediment trapping capability, and less desirable forage for livestock and wildlife.

Butte Standard #3: Water quality meets state standards.

As addressed by the preamble to these standards and as indicated by:

- dissolved oxygen concentration
- pH
- turbidity
- temperature
- fecal coliform
- sediment
- color
- toxins
- other parameters: ammonia, barium, boron, chlorides, chromium, cyanide, endosulfan, lindane, nitrates, phenols, phosphorus, sodium, sulfates, etc.

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Some of the common indicators of water quality are:

Dissolved oxygen concentration (DO) - is a function of temperature of the water, altitude and barometric pressure. The ability of water to hold oxygen decreases with the increases in temperature, altitude and dissolved solids (TDS). This is important in fish spawning areas where DO levels must be maintained at specific levels for good growth and general well being of fish and associated biota.

pH (hydrogen-ion concentration) - is an indicator of acidity and/or alkalinity and an index of hydrogen-ion activity. Lower values indicated acid, higher values

indicated alkaline. Fresh water organisms function properly if the pH ranges from 6.0 to 9.0 units. pH concentrations below the recommended level are toxic to fish and other aquatic organisms.

Turbidity - is the disturbance of water due to the presence of suspended matter such as clays, silt, organic matter, and various effluents. It is the expression of the optical property of water. Excess turbidity reduces light penetration, which reduces photosynthesis by phytoplankton, and submerged vegetation.

Temperature - is an important function which affects aquatic productivity. Temperature changes may result from natural climatic conditions due to man's manipulation of the riparian environment. Temperature is a function of location, season, time, duration of flow, depth, and many other variables. Aquatic biota are adapted to certain thermal conditions existing in the habitat for their survival and well being. The interrelationship between these conditions are so great that small changes in temperature may have far-reaching effects.

Coliform groups - include bacteria organisms in their natural habitat and sources; i.e., feces, soil, water, vegetation, etc. Fecal coliform may be an indicator of recent fecal pollution. Other coliform organisms may be the result of plant and soil runoff water.

Sediment - is a measure of suspended sand, silt, colloid and organic matter which will settle in time to the stream bottom. They originate from sources such as erosion, mine waste, plowed fields, construction projects, natural erosion, or vegetative manipulation. They may affect fisheries by covering the bottom of the stream or lake with a blanket of material that destroys the bottom fauna or spawning grounds for fish.

Color - is attributed to substances in solution after the suspensoid have been removed. It may be organic or inorganic substances that affect photosynthesis activity in the water. Organic substances include humic materials, peat, aquatic plants, etc. Inorganic sources include iron and manganese compounds, chemicals, industrial waste, etc.

Toxins - are those compounds or substances which are found in by- products or waste of the various industries or activities that make their way into water sources which produce a variety of effects on fish or alter the biological productivity of water sources.

Acceptable water quality is indicated by:

Dissolved oxygen concentrations - DO concentrations are being maintained at or near saturation levels.

pH - pH concentrations are at or near recommended State levels.

Turbidity - Turbidity readings do not exceed Jackson Turbidity Unit readings for the water source.

Temperature - Water temperature readings meet State standard preferred for good growth and productivity.

Coliform - Organisms of the coliform group do not exceed State average for the site.

Sediment - Water normally contains suspended solids that do not exceed State standard.

Color - Water color does not limit or significantly restrict photosynthesis processes.

Toxins - Toxin levels are in conformance with State standard.

Butte Standard #4: Air quality meets state standards.

As addressed by the preamble to these standards and as indicated by:

- Section 176(c) of the Clean Air Act, which states that activities of all federal agencies must conform to the intent of the appropriate State Air Quality Implementation Plan and not:
  - cause or contribute to any violations of ambient air quality standards
  - increase the frequency of any existing violations
  - impede a state's progress in meeting its air quality goals

Montana Air Quality Standards

PM-10	50 ug/m3 annual ave.
	150 ug/m3 24-hr avg.*
Sulfur Dioxide	0.02 ppm annual ave.
	0.10 ppm 24-hr avg.*
	0.50 ppm 1-hr avg.**
Carbon Monoxide	23 ppm hourly avg.*
	9.0 ppm 8-hr avg.*
Nitrogen Dioxide	0.05 ppm annual avg.
	0.30 ppm hourly avg.*
Ozone	0.10 ppm hourly avg.*
Lead	1.5 ug/m3 90 day avg.
Foliar Fluoride	35 ug/g grazing season avg.
	50 ug/g monthly avg.

Settled Particulate Matter (dustfall)	10mg/m2 30-day avg.
Hydrogen Sulfide	0.05 ppm hourly avg.*
Visibility	particle scattering coefficient of 3x10-5 per meter annual average***

* Not to be exceeded more than once per year.
** Not to be exceeded more than 18 times per year.
*** Applies to PSD mandatory Class I areas.

The Clean Air Act established the Prevention of Significant Deterioration (PSD) regulations which set limits for increases in ambient pollution levels and established a system for preconstruction review of new major air pollution sources. Three PSD classes have been established: Class I, Class II, and Class III. Class I areas consist of all international parks, national parks greater than 5,000 acres, national wilderness areas greater than 5,000 acres, and national wildlife refuges which existed on August 7, 1977, when the amendment was signed into law.

Protection of air quality is provided to Class I areas by severely limiting the amount of additional human-caused air pollution which can be added. All other areas, except non-attainment areas, are classified as Class II in which a greater amount of additional human-caused pollution may be added. In no case, however, may pollutant concentrations exceed the national or state ambient air quality standards.

Butte Standard #5: Provide habitat as necessary, to maintain a viable and diverse population of native plant and animal species, including special status species.

As addressed by these standards and as indicated by:

- plants and animals are diverse, vigorous and reproducing satisfactorily; noxious weeds are absent or insignificant in the overall plant community
- spatial distribution of species is suitable to ensure reproductive capability and recovery
- a variety of age classes are present
- connectivity of habitat or presence of corridors prevents habitat fragmentation
- diversity of species (including plants, animals, insects and microbes) are represented
- plant communities in a variety of successional stages are represented across the landscape

BLM is charged with managing and developing habitat for a large variety of fish, wildlife, and special status species of plants. Basic habitat considerations can be categorized as including food, water, cover, and space. Specific habitat requirements often vary depending on what geographic area is being considered, species which are present, and the nature and extent of other uses which may be competing. A review of components of the above-listed standards (Proper Functioning Riparian-Wetland areas, Uplands and Water Quality) will provide much of the requirements needed to achieve fish, wildlife, and special status plant habitat.

Guidelines

Butte Guideline #1: Manage grazing to maintain or improve watershed vegetation, biodiversity, and floodplain function. Maintain or improve riparian vegetative cover and structure to trap and hold sediments during run-off events to rebuild streambanks, restore/recharge aquifers, and dissipate flood energy. Promote deep-rooted herbaceous vegetation to enhance streambank stability. Where potential for woody shrub species (willows, dogwood, etc.) exists, promote their growth or expansion to aid in controlling access to streambanks, and to provide wildlife cover.

Butte Guideline #2: Pastures and allotments will be periodically inventoried to determine their relative suitability for livestock grazing. Topography, slope, distance from water, or vegetation habitat types, wildlife, channel types, soil types, and other resource values must be considered when determining grazing potential. Specific areas could be excluded from grazing, fenced into separate management pastures, or managed more intensively.

Butte Guideline #3: Management strategies for livestock grazing should produce sustainable hydrological, vegetative, and soil conditions. Thresholds for acceptable streambank alteration and vegetation utilization can be site-specific, and they should be the basis for establishing terms and conditions for allotments. These thresholds should be consistent with standards and result from application of scientifically acceptable hydrological and biological principles. Each allotment must have a monitoring plan, and monitoring results should be critical input to grazing system design. Long term analysis of trend shall be the primary monitoring tool, and will be augmented by short term monitoring information. Monitoring plans should address rangeland standards including hydrologic, vegetative, and soil conditions.

Long term and short term monitoring attributes may include:

Hydrologic:

- stream morphology
- streambank alteration

Vegetative:

- species composition
- plant density
- demographics
- stubble height
- utilization

Soils:

- percent bare ground
- compaction
- pedestaling

Self-monitoring by permittee should be encouraged, but with these sideboards:

- permittee's data and BLM's data should be comparable
- BLM must perform some level of compliance monitoring for each s self monitored allotment to ensure the permittee's monitoring is being done and it is valid.
- there should be regular reporting of self-monitoring data
- when appropriate, monitoring should include the use of reference sites (such as exclosures)

Permittees and interested members of the public should be able to participate in the development of monitoring plans.

Butte Guideline #4: Compatible seasons and duration of use, rest periods, stocking rates, structural facilities, and management activities, should be designed and implemented to ensure that standards are achieved.

Butte Guideline #5: The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions, processes and native species of those sites.

Butte Guideline #6: Locate facilities (e.g., corrals, water developments) away from riparian areas and wetlands when possible.

Butte Guideline #7: Supplemental salt and minerals should not be placed adjacent to watering locations or in riparian-wetland areas so not to adversely impact streambank stability, riparian vegetation, water quality, or other sensitive areas. Placement of salt in upland sites should consider critical winter wildlife habitat.

Butte Guideline #8: Noxious weed control is essential and should include: cooperative agreements, public education, and integrated pest management (mechanical, biological, chemical). Butte RAC has addressed weeds in a Resolution dated May 8, 1996 (Enclosed).

Butte Guideline #9: Native species are preferred. Non-native species, where contributing to proper ecosystem function, are acceptable.

Butte Guideline #10: Livestock management should utilize Best Management Practices for livestock grazing that meet or exceed those approved by the State of Montana in order to maintain, restore or enhance water quality.

Butte Guideline #11: Grazing management practices should maintain or improve habitat for Federally listed threatened, endangered, and sensitive plants and animals.

Lewistown District

Standards:

Standards are statements of physical and biological condition or degree of function required for healthy sustainable rangelands. Achieving or making significant and measurable progress towards these functions and conditions is required of all uses of public rangelands. Historical data, when available, should be used when assessing progress towards these standards.

Lewistown Standard #1: Uplands are in proper functioning condition.

This means that soils are stable and provide for capture, storage and safe release of water appropriate to soil type, climate and landform. The amount and distribution of ground cover (i.e., litter, live and standing dead vegetation, microbiotic crusts, and rock/gravel) for identified ecological site(s) or soil-plant associations are appropriate for soil stability.

Evidence of accelerated erosion in the form of rills and/or gullies, erosional pedestals, flow patterns, physical soil crusts/surface scaling and compaction layers below the soil surface is minimal. Ecological processes including hydrologic cycle, nutrient cycle and energy flow are maintained and support healthy biotic populations. Plants are vigorous, biomass production is near potential and there is a diversity of species characteristic of and appropriate to the site. Assessing proper functioning conditions will consider use of historical data.

As indicated by:

Physical Environment

- erosional flow patterns
- surface litter
- soil movement by water and wind
- soil crusting and surface sealing
- compaction layer
- rills
- gullies
- cover amount
- cover distribution

Biotic Environment

- community richness
- community structure
- exotic plants
- plant status
- seed production
- recruitment
- nutrient cycle

Lewistown Standard #2: Riparian and wetland areas are in proper functioning condition.

This means that the functioning condition of riparian-wetland areas is a result of the interaction among geology, soil, water and vegetation. Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid flood plain development; improve floodwater retention and groundwater recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for native fish production, waterfowl breeding, and other uses appropriate for the area that will support greater species richness.

The riparian-wetland vegetation is a mosaic of species richness and community structure serving to control erosion, shade water, provide thermal protection, filter sediment, aid floodplain development, dissipate energy, delay flood water, and increase recharge of groundwater where appropriate to landform. The stream channels and flood plain dissipate energy of high water flows and transport sediment appropriate for the geomorphology (e.g., gradient, size, shape, roughness, confinement, and sinuosity), climate, and landform. Soils support appropriate riparian-wetland vegetation, allowing water movement, filtering sediment, and slowing ground water movement for later release. Stream channels are not entrenching beyond natural climatic variations and water levels maintain appropriate riparian-wetland species.

Riparian areas are defined as land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lake shores and streambanks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil. Assessing proper functioning conditions will consider use of historical data.

As indicated by:

Hydrologic

- floodplain inundated in relatively frequent events (1-3 years)
- amount of altered streambanks
- sinuosity, width/depth ratio, and gradient are in-balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
- upland watershed not contributing to riparian degradation

Erosion Deposition

- floodplain and channel characteristics; i.e., rocks, coarse and/or woody debris adequate to dissipate energy
- point bars are being created and older point bars are being vegetated
- lateral stream movement is associated with natural sinuosity
- system is vertically stable
- stream is in balance with water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Vegetation

- reproduction and diverse age class of vegetation
- diverse composition of vegetation
- species present indicate maintenance of riparian soil moisture characteristics
- streambank vegetation is comprised of those plants or plant communities that have deep binding root masses capable of withstanding high streamflow events
- utilization of trees and shrubs
- riparian plants exhibit high vigor
- adequate vegetative cover present to protect banks and dissipate energy during high flows
- where appropriate, plant communities in the riparian area are an adequate source of woody debris

Lewistown Standard #3: Water quality meets Montana state standards.

This means that surface and groundwater on public lands fully support designated beneficial uses described in the Montana Water Quality Standards. Assessing proper functioning conditions will consider use of historical data.

As indicated by:

- dissolved oxygen concentration
- pH
- turbidity
- temperature
- fecal coliform
- sediment
- color
- toxins
- others: ammonia, barium, boron, chlorides, chromium, cyanide, endosulfan, lindane, nitrates, phenols, phosphorus, sodium, sulfates, etc.

Lewistown Standard #4: Air quality meets Montana State standards.

This means that air quality on public lands helps meet the goals set out in the State of Montana Air Quality Implementation Plan. Efforts will be made to limit unnecessary emissions from existing and new point or nonpoint sources.

The BLM management actions or use authorizations do not contribute to air pollution that violates the quantitative or narrative Montana Air Quality Standards or contributes to deterioration of air quality in selected class area.

As indicated by:

- Section 176(c) Clean Air Act which states that activities of all federal agencies must conform to the intent of the appropriate State Air Quality Implementation Plan and not:

    - cause or contribute to any violations of ambient air quality standards
    - increase the frequency of any existing violations
    - impede a state's progress in meeting their air quality goals

Lewistown Standard #5: Habitats are provided to maintain healthy, productive and diverse populations of native plant and animal species, including special status species (federally threatened, endangered, candidate or Montana species of special concern as defined in BLM Manual 6840, Special Status Species Management).

This means that native plant and animal communities will be maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant lifeforms. Where native communities exist, the conversion to exotic communities after disturbance will be minimized. Management for indigenous vegetation and animals is a priority. Ecological processes including hydrologic cycle, and energy flow, and plant succession are maintained and support healthy biotic populations. Plants are vigorous, biomass production is near potential, and there is a diversity of plant and animal species characteristic of and appropriate to the site. The environment contains components necessary to support viable populations of a sensitive/threatened and endangered species in a given area relative to site potential. Viable populations are wildlife or plant populations that contain an adequate number of reproductive individuals distributed on the landscape to ensure the long-term existence of the species. Assessing proper functioning conditions will consider use of historical data.

As indicated by:

- plants and animals are diverse, vigorous and reproducing satisfactorily; noxious weeds are absent or insignificant in the overall plant community
- spatial distribution of species is suitable to ensure reproductive capability and recovery
- a variety of age classes are present
- connectivity of habitat or presence of corridors prevents habitat fragmentation
- species richness (including plants, animals, insects and microbes) are represented
- plant communities in a variety of successional stages are represented across the landscape.

Grazing Management Guidelines:

Guidelines for management of herbivory (including domestic animals and wildlife) are preferred or advisable approaches to ensure that standards can be met or that significant progress can be made toward meeting the standard(s). Responsible state and federal wildlife agencies must be involved in this management if standards are to be achieved.

Guidelines are provided to maintain or improve resource conditions in upland and riparian habitats. In both riparian and upland habitats, these guidelines focus on establishing and maintaining proper functioning conditions. The application of these guidelines is dependent on individual management objectives. Desired future conditions in plant communities and streambank characteristics will be determined on a case-by-case basis.

Lewistown Guideline #1: Grazing will be managed in a manner that will maintain the proper balance between soils, water, and vegetation over time. This balance varies with location and management objectives, historic use, and natural fluctuations, but acceptable levels of use can be developed that are compatible with resource objectives.

Lewistown Guideline #2: Manage grazing to maintain watershed vegetation, species richness, and floodplain function. Maintain riparian vegetative cover and structure to trap and hold sediments during run-off events to build streambanks, recharge aquifers, and dissipate flood energy. Grazing management should promote deep-rooted herbaceous vegetation to enhance streambank stability. Where non-native species are contributing to proper functioning conditions, they are acceptable. Where potential for palatable woody shrub species (willows, dogwood, etc.) exists, promote their growth and expansion within riparian zones.

Lewistown Guideline #3: Pastures and allotments will be managed based on their sensitivity and suitability for livestock grazing. Where determinations have not been previously documented, suitability for grazing will be determined by: topography, slope, distance from water, vegetation habitat types, and soil types must be considered when determining grazing suitability. Unsuitable areas should be excluded from grazing.

Lewistown Guideline #4: Management strategies for livestock grazing will ensure that long-term resource capabilities can be sustained. End of season stubble heights, streambank moisture content, and utilization of herbaceous and woody vegetation are critical factors which must be evaluated in any grazing strategy. These considerations are essential to achieving long-term vegetation or stream channel objectives and should be identified on a site-specific basis and used as terms and conditions.

Lewistown Guideline #5: Grazing will be managed to promote desired plants and plant communities of various age classes, based on the rate and physiological conditions of plant growth. Management approaches will be identified on a site-specific basis and implemented through terms and conditions. Caution should be used to avoid early spring grazing use when soils and streambanks are wet and susceptible to compaction and physical damage that occurs with animal trampling. Likewise, late summer and fall treatments in woody shrub communities should be monitored closely to avoid excessive utilization.

Lewistown Guideline #6: The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions and processes of those sites.

Lewistown Guideline #7: Locate facilities (e.g., corrals, water developments) away from riparian-wetland areas.

Lewistown Guideline #8: When provided, supplemental salt and minerals should not be placed adjacent to watering locations or in riparian-wetland areas so not to adversely impact streambank stability, riparian vegetation, water quality, or other sensitive areas (i.e., key wildlife wintering areas). Salt and minerals should be placed in upland sites to draw livestock away from watering areas or other sensitive areas and to contribute to more uniform grazing distribution.

Lewistown Guideline #9: Noxious weed control is essential and should include: cooperative agreements, public education, and integrated pest management (mechanical, biological, chemical).

Lewistown Guideline #10: Livestock management should utilize practices such as those referenced by the NRCS published prescribed grazing technical guide to maintain, restore or enhance water quality.

Lewistown Guideline #11: Grazing management should maintain or improve habitat for federally listed threatened, endangered, and sensitive plant and animals.

Lewistown Guideline #12: Grazing management should maintain or promote the physical and biological conditions to sustain native populations and communities.

Lewistown Guideline #13: Grazing management should give priority to native species. Non-native plant species should only be used in those situations where native seed is not readily available in sufficient quantities, where native plant species cannot maintain or achieve the standards, or where non-native plant species provide an alternative for the management and protection of native rangelands.

Lewistown Guideline #14: Allotment monitoring determines how on-going management practices are affecting the rangeland. To do so, the evaluations should be based on: 1. measurable management objectives; 2. permanent and/or repeatable monitoring locations; and, 3. short-term and long-term data.

Miles City

Preface

Rangeland health can be defined as the degree to which the integrity of the physical and ecological processes of the rangeland ecosystems are sustained.

The capacity of rangelands to produce commodities and satisfy values on a sustained basis depends upon the internal, self-sustaining ecological processes such as soil development, nutrient cycling, energy flow, and the structure and dynamics of plant and animal communities.

Rangeland health is the minimum ecological standard, independent of the rangeland's use and how it is managed. If rangeland health is protected, a variety of uses could be appropriate for any particular rangeland.

Standards apply to rangeland health and not to the important bi-products of healthy rangelands such as more fish, higher livestock weaning weights, regional social and cultural values, increased timber production, economic viability of livestock operations or higher numbers of game animals. It is sustainability of the processes, of Rangeland Health, that produce these social values and commodities.

The Bureau of Land Management is committed to grazing as an appropriate use of public rangelands and to maintaining healthy and productive rangelands that support stable western communities. This is a commitment that began with the Taylor Grazing Act, which reversed the decline in the health of the range, is reiterated in the Federal Land Policy Management Act that ensures public lands are managed for multiple use and guarantees grazing as an activity on the public lands.

Standards for Rangeland Health and Guidelines for Grazing Management are intended to maintain healthy and productive public rangelands that are essential to support long-term grazing and stable communities that rely on the land.

Standards apply to the Health of the Land. All uses of public rangeland need to be conducted in such a manner that Standards are achieved. Standards are measurable levels of resource quality, condition, or function upon which management decisions are based. It is BLM's policy to achieve rangeland health standards through management of existing uses when feasible.

Standards provide the technical and scientific basis for measuring progress towards healthy productive rangelands.

Disturbance regimes such as fire, climatic events, geology, the natural and historic range of variability and the potential of the area are considered when assessing rangeland health.

Standards are not expected to recreate theoretical "pristine" rangeland conditions that may have existed before livestock grazing began. It is assumed that most areas will be grazed unless there is no way to graze them and still achieve standards or the area is dedicated to other uses such as campgrounds, mining, and cultural or historical sites, like Pompey's Pillar.

At a minimum State or regional standards must address:

(1) Watershed function
(2) Nutrient cycling and energy flow
(3) Water quality
(4) Habitat for endangered, threatened, proposed, Candidate 1 or 2 or special; status species; and
(5) Habitat quality for native plant and animal populations and communities.

Guidelines for grazing management are the types of grazing management methods and practices determined to be appropriate to ensure that standards can be met or that significant progress can be made toward meeting standards.

Guidelines are best management practices (BMP), treatments, and techniques and implementation of range improvements that will help achieve rangeland health standards. Guidelines are flexible and are applied on site specific situations.

Field managers must determine if standards are being met, consider what factors are causing standards not to be met, and take appropriate action to deal with those factors. If livestock grazing is preventing achievement of standards, then guidelines would be applied through terms and conditions. If an area is not meeting standards due to conditions that are not related to livestock grazing then the grazing management may not need to be adjusted.

Guidelines may be adapted or changed when monitoring or other information indicates the guidelines are not effective or a better means of meeting applicable standards exist.

The new grazing regulations under 4180.2(e) require that minimum, state or regional guidelines developed must address a list of attributes:

a. Maintain or promote adequate amounts of vegetative ground cover

b. Maintain or promote subsurface soil conditions

c. Maintain, improve or restore riparian-wetland functions

d. Maintain or promote stream channel morphology

e. Maintain or promote appropriate kinds and amounts of soil organisms, plants and animals

f. Promote the opportunity for seedling establishment

g. Maintain, restore, enhance water quality

h. Restore, maintain or enhance T&E habitat

i. Restore, Maintain, enhance T&E candidate and special status species habitat

j. Maintain or promote native populations and their communities

k. Emphasize native species in the support of ecological function

l. Only incorporate the use non-native plant species when native species are not available or are incapable of achieving proper functioning condition.

Terms and Conditions of permits and leases are specific actions in the permit or lease that implement the spirit and intent of the standards and guidelines.

Terms and conditions are site specific. They are determined by an interdisciplinary team in consultation with permittees and interested parties for each individual allotment. Terms and conditions are a tool to achieve resource conditions in the standard. They are meant to be modified if monitoring data shows those terms and conditions currently being applied are not achieving desired results.

Miles City Standards for Rangeland Health

Standards are statements of physical and biological condition or degree of function required for healthy sustainable rangelands. Achieving or making significant progress towards these functions and conditions is required of all uses of public rangelands. Historical data, when available, should be utilized when assessing Standards.

STANDARD #1: Uplands are in proper functioning condition.

This means that soils are stable and provide for the capture, storage and safe release of water appropriate to soil type, climate and landform. The amount and distribution of ground cover (i.e. litter, live and standing dead vegetation, microbiotic crusts, and rocks/gravel) for identified ecological site(s) or soil plant associations is appropriate for soil stability. Evidence of accelerated erosion in the form of rills and/or gullies, erosional pedestals, flow patterns, physical soil crusts/surface sealing and compaction layers below the soil surface is minimal. Ecological processes including hydrologic cycle, nutrient cycle and energy flow are maintained and support healthy biotic populations. Plants are vigorous, biomass production is near potential and there is a diversity of species characteristic of and appropriate to the site.

As indicated by:

Physical Environment

erosional flow patterns
surface litter
soil movement by water and wind
infiltration
soil crusting and surface sealing
compaction layer
rills
gullies
cover amount
cover distribution

Biotic Environment

community diversity
community structure
exotic plants
photosynthesis activity
plant status
seed production
recruitment
nutrient cycle

STANDARD #2: Riparian areas and wetlands are in proper functioning condition.

This means that the functioning condition of riparian-wetland areas is a result of the interaction among geology, soil, water, and vegetation. Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve floodwater retention and ground-water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity.

The riparian/wetland vegetation is controlling erosion, stabilizing streambanks, shading water to reduce stream temperature in the summer and provide thermal protection in the winter, stabilizing shorelines, filtering sediment, aiding floodplain development, dissipating energy, delaying flood water, and increasing recharge of ground-water where

appropriate to landform. The stream channels and floodplains dissipate the energy of high water flows and transport sediment appropriate for the geomorphology (e.g., gradient, size, shape, roughness, confinement, and sinuosity), climate, and landform. Soils support appropriate riparian-wetland vegetation, allowing water movement, filtering sediment, and storing water for later release. Stream channels are not entrenching and water levels maintain appropriate riparian/wetland species.

Riparian Areas are defined as an area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lake shores and streambanks are typical riparian areas. Excluded are such sites a ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil.

Proper Functioning Condition of Riparian Areas are Indicated by :

Hydrologic

- floodplain inundated in relatively frequent events
- amount of altered streambanks
- sinuosity, width/depth ratio, and gradient are inbalance with the landscape setting (i.e., landform, geology, and bioclimatic region.)
- riparian zone width
- upland watershed not contributing to riparian degradation

Erosion Deposition

- floodplain and channel characteristics; i.e., rocks, coarse and/or woody debris adequate to dissipate energy
- point bars are vegetating
- lateral stream movement is associated with natural sinuosity
- system is vertically stable
- stream is in balance with water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)
- bare ground

Vegetation

- reproduction and diverse age structure of vegetation
- diverse composition of vegetation
- species present indicate maintenance of riparian soil moisture characteristics
- streambank vegetation is comprised of those plants or plant communities that have deep binding root masses capable of withstanding high streamflow events
- utilization of trees and shrubs
- healthy riparian plants
- adequate vegetative cover present to protect banks and dissipate energy during high flows

STANDARD #3: Water quality meets Montana state standards.

This means that surface and ground water on public lands fully support designated beneficial uses described in the Montana Water Quality Standards.

As indicated by:

- dissolved oxygen concentration
- pH
- turbidity
- temperature
- fecal coliform
- sediment
- color
- toxins

others: ammonia, barium, boron, chlorides, chromium, cyanide, endosulfan, lindane, nitrates, phenols, phosphorus, sodium, sulfates, etc.

STANDARD #4: Air quality meets Montana state standards.

This means that air quality on public lands helps meet the goals set out in the State of Montana Air Quality Control Implementation Plan. Efforts will be made to limit unnecessary emissions from existing and new point or non-point sources.

BLM management actions or use authorizations do not contribute to air pollution that violates the quantitative or narrative Montana Air Quality Standards or contributes to deterioration of air quality in selected class areas.

As indicated by:

- Section 176(c) Clean Air Act which states that activities of all federal agencies must conform to the intent of the appropriate State Air Quality Implementation Plan and not:
  - cause or contribute to any violations of ambient air quality standards
  - increase the frequency of any existing violations
  - impede a state's progress in meeting their air quality goals

STANDARD #5: Habitats are provided for healthy, productive, and diverse native plant and animal populations and communities. Habitats are improved or maintained for

special status species (federally threatened, endangered, candidate or Montana species of special concern

This means that native plant communities will be maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant lifeforms. Where native communities exist, the conversion to exotic communities after disturbance will be minimized. Management for native vegetation is a management priority. Ecological processes including hydrologic cycle and energy flow are maintained and support healthy biotic populations. Plants are vigorous, biomass production is near potential and there is a diversity of species characteristic of and appropriate to the site. The environment contains all the necessary components to support viable populations of a sensitive/threatened and endangered species in a given area relative to site potential. Viable populations are wildlife or plant populations that contain an adequate number of reproductive individuals distributed on the landscape to ensure the long-term existence of the species.

As indicated by:

- Plants and Animals are diverse, vigorous and reproducing satisfactorily; noxious weeds are absent or insignificant in the overall plant community

- An effective weed management program is in place.

- Spatial distribution of species is suitable to ensure reproductive capability and recovery

- A variety of age classes are present (at least two age classes)

- Connectivity of habitat or presence of corridors prevents habitat fragmentation

- Diversity of Species (including plants, animals, insects and microbes) are represented

- Plant communities in a variety of successional stages are represented across the landscape. This will be accomplished by allowing progression of succession in conjunction with livestock grazing.

Grazing Management Guidelines

Guidelines for grazing management are preferred or advisable approaches to grazing management practices determined to be appropriate to ensure that standards can be met or that significant progress can be made toward meeting the standard(s)

Guidelines are provided to maintain or improve resource conditions in upland and riparian habitats available to livestock grazing. In both riparian and upland habitats, these guidelines focus on establishing proper functioning conditions. The application of these guidelines is dependent on individual management objectives. Desired future conditions in plant communities and streambank characteristics will be determined on a case-by-case basis.

Miles City Guideline #1: Grazing will be managed in a manner that will maintain the proper balance between soils, water, and vegetation over time. This balance varies with location and management objectives, but acceptable levels of use can be developed that are compatible with resource objectives.

Miles City Guideline #2 Manage grazing to maintain watershed vegetation, biodiversity, and floodplain function. Maintain riparian vegetative cover and structure to trap and hold sediments during run-off events to rebuild streambanks, restore/recharge aquifers, and dissipate flood energy. Promote deep-rooted herbaceous vegetation to enhance streambank stability. Where potential for woody shrub species (willows, dogwood, etc.) exists, promote their growth and expansion to aid in controlling animal access to streambanks, and to provide wildlife cover.

Miles City Guideline #3 Pastures and allotments will be identified based on their sensitivity and suitability for livestock grazing. Unsuitable or potentially unsuitable areas may be fenced into separate management areas, or managed more intensively.

Miles City Guideline #4 Based on long term monitoring, management strategies for livestock grazing will ensure that long-term resource capabilities can be sustained over time. Natural and management induced streambank alteration, end of season stubble heights, and utilization of herbaceous and woody vegetation are critical factors which must be evaluated in any grazing strategy. These considerations are essential to achieving long-term vegetation or stream channel objectives. Where appropriate, acceptable levels of streambank alteration and herbaceous/woody utilization should be identified on a site-specific basis, and used as terms and conditions. Compatible seasons and duration of use, rest periods, stocking rates, structural facilities, and management activities can then be designed to ensure that standards are achieved.

Miles City Guideline #5 Frequency of grazing and extent of defoliations will be managed to promote desired plants and plant communities, based on the rate and physiological conditions of plant growth. To meet these plant growth considerations the following could be applied: No grazing unit should be grazed for more than half the growing season

of key plant species. Periods of use throughout the growing season (early, mid, late) should be alternated from year to year. Defer each field from grazing until seeds set at least once every 3 years. The season of use should be alternated from year to year to allow for regeneration of woody and herbaceous species. Stages of plant growth, length of grazing period, target utilization levels, and frequency of grazing should be used to determine when livestock are ready to be moved to another grazing unit, instead of calendar dates. Caution should be used with early spring grazing use when soils and streambanks are wet and susceptible to compaction and physical damage that occurs with animal trampling. Likewise, late summer and fall treatments in woody shrub communities can result in excessive utilization.

Miles City Guideline #6 Monitoring is essential to determine if management guidelines and terms and conditions are meeting standards or making significant progress towards achieving standards. Monitoring data over time shall be used to make adjustments to grazing management as needed. In monitoring standards, BLM will consider the impacts of all multiple uses on public rangelands.

Miles City Guideline #7 The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions and processes of those sites.

Miles City Guideline #8 Locate new facilities (e.g., corrals, water developments) away from riparian-wetland areas.

Miles City Guideline #9 When provided, supplemental salt and minerals should not be placed adjacent to watering locations or in riparian-wetland areas so not to adversely impact streambank stability, riparian vegetation, water quality, or other sensitive areas. Generally, salt and minerals should be placed in upland sites to draw livestock away from watering areas or other sensitive areas and to contribute to more uniform grazing distribution.

Miles City Guideline #10 For guidelines for noxious weed management refer to "Guidelines for Coordinated Management of Noxious Weeds in the Greater Yellowstone Area". These guidelines provide a unified effort in developing a public awareness program; a prevention program; and a common inventory, mapping, monitoring, and reporting procedure. An overall Management Plan and specific action plans can be developed for logical units of land called Weed Management Areas.

Miles City Guideline #11 Grazing management practices should maintain or promote the interaction of the hydrologic cycle, nutrient cycle and energy flow that will support the appropriate types and amounts of soil organisms, plants, and animals appropriate to soil type, climate and landform.

Miles City Guideline #12 Livestock management should utilize management practices for livestock grazing that meet or exceed those Best Management Practices approved by the State of Montana in order to maintain, restore or enhance water quality.

Miles City Guideline #13 Grazing management practices should maintain or improve habitat for Federally listed threatened, endangered, and special status plants and animals.

Miles City Guideline #14 Grazing management practices should maintain or promote physical, ecological and biological functions and conditions to sustain native plant and animal communities.

Dakotas District

Dakotas Standard #1: Uplands are in proper functioning condition for site specific conditions of climate, soils and parent material.

As indicated by:

Physical Environment

- erosional flow patterns
- surface litter
- soil movement by wind and water
- infiltration
- soil crusting and surface sealing
- rills
- gullies
- cover amount
- cover distribution

Biotic Environment

- community diversity
- community structure
- exotic plants
- photosynthesis activity
- plant status
- seed production
- recruitment
- nutrient cycle

Background Information

No single factor or characteristic of an upland site can provide a complete picture of either that site's condition or the direction of its successional change. Things considered "negative" in traditional evaluations of ecological sites may or may not be such for upland sites.

Rangeland health should be based on the evaluation of several criteria including, at a minimum, degree of soil stability and watershed function, nutrient cycles and energy flows, and available recovery mechanisms.

Indicators to assess soil stability and watershed function relate to two fundamental processes of watershed degradation: (1) Soil erosion by wind and water, and (2) Infiltration of precipitation and/or runoff. Indicators such as rills, gullies, flow patterns, pedestaling and compaction may be used to assess watershed condition.

Indicators that can be used to evaluate nutrient cycles and energy flows relate to distribution of plants, litter, roots, and photosynthetic period.

Recovery mechanisms or plant demographic indicators may include increasing vegetative cover, plant vigor, kind and number of seedlings, and changes in plant age distribution.

Physical features of a proper functioning watershed are indicated by:

- little evidence of soil erosion by wind and/or water as indicated by the significant absence of rills, gullies, and pedestals
- surface sealing and soil crusting is not evident
- plant (ground) cover and litter accumulation is adequate to protect site

Soils are stable and provide for capture, storage, and release of water appropriate to soil type, climate and landform.

Biotic features of a proper functioning watershed are indicated by:

- a sufficient variety and number of plant life forms (grass, forb, shrub, tree) occur on the site
- plants exhibit optimal size, height, distribution, and age/class
- introduced or exotic plants (weeds) are absent or sparse on site
- plants are alive, productive with well developed root systems
- plant reproduction is adequate for stand maintenance of all life-forms
- litter distribution is uniform across site
- nutrient/energy cycle mechanisms are adequate for plant maintenance

Dakotas Standard #2: Riparian areas and wetlands are in proper functioning condition for site specific conditions of climate, soils and parent material.

As indicated by the presence or absence of:

Hydrologic

- floodplain inundated in relatively frequent events
- altered streambanks
- upland watershed not contributing to riparian degradation
- stream channel morphology (including but not limited to gradient, width/depth ratio, channel roughness and sinuosity) and functions are appropriate for the climate and landform

Erosion Deposition

- floodplain and channel characteristics; i.e., rocks, coarse and/or woody debris adequate to dissipate energy
- lateral stream movement is associated with natural sinuosity
- system is vertically stable
- stream is in balance with water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)
- bare ground

Vegetation

- healthy, productive and diverse populations of native species are being maintained
- condition of trees and shrubs
- riparian plants exhibit high vigor
- adequate vegetative cover present to protect banks and dissipate energy during high flows

Background Information

No single factor or characteristic of a riparian site can provide a complete picture of either that site's condition or the direction of its successional change. Things considered "negative" in traditional evaluations of ecological sites may not be such for riparian sites. For example, the percent of exposed soil surface, which often reflects overgrazing or erosion on upland sites, may be a result of normal riparian activity, sediment deposition resulting after spring runoff, or a high water event.

Broadly, "proper functioning condition" may be defined as the ability of a stream to perform its riparian functions. These functions include sediment filtering, bank building, water storage, aquifer recharge, and hydrologic energy dissipation.

Hydrology\Streambanks

The hydrology of a riparian area is perhaps its most important characteristic. Changes in hydrology may result in short and long term vegetative changes. In some situations, construction (riprap, roads, railroads, etc.) has influenced the streambanks and stability has been increased over the natural levels. These streambanks may eventually lose their stability, and become altered. This generally occurs if the problems which caused the weak streambanks have not been remedied. Also, constructed streambanks (especially those with riprap) will often disrupt the normal energy dissipation of the stream and eventually the meandering of a stream can result in the erosion of streambanks downstream.

Lateral Cutting

Lateral cutting is indicated by new stream-caused bank disruption along the outside of stream curves, and much less common, along the straight portions of a stream. A high degree of active lateral cutting can indicate a degraded watershed.

Altered Streambanks

In many instances, land uses have degraded streambanks, accelerating stream movement across the floodplain. We define altered streambanks as those having impaired structural integrity (strength or stability) due to activities which expose soil surfaces as a result from hiking, ATV, livestock and wildlife trails, roads, logging skid trails, mining activities, etc.

Deep Binding Root Mass

Properly functioning streambanks are protected by both vegetation and bank rock materials (e.g., boulders and cobbles). There have been few studies documenting the depth and extent of root systems of various plant species. Among riparian herbaceous species, the first rule is that annual plants do not have deep, binding root masses. Perennial species, including trees and shrubs, offer a wide range of root mass qualities and may indicate long term streambank stability.

Downcutting

Active downcutting of a stream is often hard to recognize. Perched wetland vegetation and streambank features, plus the lack of a separate layer of channel bottom materials (i.e., the stream flows directly on the substrate materials), can be clues to downcutting.

Soils/Geology

The soils and geology (landform and parent material) of a riparian site influence how the site reacts to disturbances and changes over time. Changes in physical characteristics are often more difficult to remedy through management actions than are vegetative changes. The depth and texture of soil of a riparian site influences the capacity of that site to hold water and act as a sponge for prolonged late season flows and support of desired vegetation.

Bare ground

Exposed soil surface is important in evaluating the health of riparian areas for several reasons: 1) vulnerability to erosion; 2) it may contribute to, as well as reflect, streambank deterioration; 3) less vegetation is available for soil protection and sediment entrapment; and 4) exposed soil provides opportunity for introduction of native plant species as well as invasion by noxious weeds and undesirable species.

Vegetation

Because they are more visible than soil or hydrological characteristics, plants may provide early indications of riparian health.

Reproduction of Trees and Shrubs

One of the clearest indicators of ecological stability, and subsequent health, is the presence of all age classes (seedling, sapling, pole, mature, decadent, and dead) of tree and shrub species where the potential exists.

Dead and Decadent Trees and Shrubs

The amount of dead and decadent material in trees and shrubs can be an indicator of the overall "health" of riparian areas. Decadent and dead woody material can indicate severe stress from artificial or natural causes and may be caused by severe winter temperatures, spring freezes, disease, over utilization, or insect infestations.

Utilization of Trees and Shrubs

Heavy utilization by livestock and/or wildlife can prevent the regeneration or establishment of woody species. Excessive use of woody species may cause their elimination from the site and their replacement by disturbance-induced species or undesirable invaders.

Plant Composition

The presence of disturbance-induced herbaceous plants (either native or introduced) may indicate that the health of the site could be improved or that it is not performing optimal riparian functions. Most of these species provide less soil holding and sediment trapping capability, and less desirable forage for livestock and wildlife.

Dakotas Standard #3: Water quality meets assigned state water quality standards.

As indicated by:

- dissolved oxygen concentration
- pH
- turbidity
- temperature
- fecal coliform
- sediment
- color
- toxins
- others: ammonia, barium, boron, chlorides, chromium, cyanide, endosulfan, lindane, nitrates, phenols, phosphorus, sodium, sulfates, etc.

Background Information

Natural processes influence the chemical, physical, and biological characteristics of water. When discussing rangeland health, water quality is a relative term which must be associated with water-use to become meaningful. Water quality varies from place to place, with the seasons, the climate, and the kind of rock and soil through which water moves. After reaching the earth, water dissolves minerals from the earth's crust, percolates though organic materials such as roots and leaves, and reacts with living things such as microscopic organisms like plankton and algae. Water quality is changed by stream sediments and is modified by temperature, soil bacteria, and evaporation.

Water quality criteria specifies concentrations of water constituents which, if not exceeded, are expected to support an aquatic ecosystem suitable for higher uses of water. Water quality criteria are intended to protect the direct uses of water, essential and significant life in water, and life that is dependent on life in water for its existence.

Some of the common indicators of water quality are:

- dissolved oxygen concentration (DO), which is a function of temperature of the water, altitude and barometric pressure. The ability of water to hold oxygen decreases with the increases in temperature, altitude and dissolved solids (TDS).

- pH (hydrogen-ion concentration), which is an indicator of acidity and/or alkalinity and an index of hydrogen ion activity. Lower values indicate acid; higher values indicate alkaline. Fresh water organisms function properly if the pH ranges from 6.0 to 9.0 units. pH concentrations below the recommended level are toxic to fish and other aquatic organisms.

- turbidity, which is the disturbance of water due to the presence of suspended matter such as clays, silt, organic matter, and various effluents. It is the expression of the optical property of water. Excess turbidity reduces light penetration.

- temperature, which is an important function which affects aquatic productivity. Temperature changes may result from natural climatic conditions or man's manipulation of the riparian environment. Temperature is a function of location, season, time, duration of flow, depth, and many other variables, which may or may not be affected by human activities.

- coliform groups, which include bacteria organisms in their natural habitat and sources; i.e., feces, soil, water, vegetation, etc. Coliform organisms may be the result of plant and soil runoff water.

- sediment, which is a measure of suspended sand, silt, colloid and organic matter which will settle in time to the stream bottom. Sediment originates from sources such as natural erosion, mine waste, plowed fields, construction projects, or vegetative manipulation.

- color, which is attributed to substances in solution after the suspensoid have been removed. It may be organic or inorganic substances that affect photosynthesis activity in the water. Organic substances include humic materials, peat, aquatic plants, etc. Inorganic sources include iron and manganese compounds, chemicals, industrial waste, etc.

- toxins, which are those compounds or substances which are found in by-products or waste of various industries or activities that make their way into water sources.

Acceptable water quality is indicated by:

- Dissolved oxygen (DO) concentrations which are being maintained at or near saturation levels
- pH concentrations which are at or near recommended State levels
- turbidity readings which do not exceed Jackson Turbidity readings for the water source

- water temperature readings which meet State standards preferred for good growth and productivity
- coliform levels which do not exceed the State average for the site
- sediment (suspended solids) which does not exceed the State standard
- color which does not limit or significantly restrict photosynthesis processes
- toxin levels which are in conformance with State standard

Dakotas Standard #4: Air quality meets State air quality standards.

(Note: The Montana and the Dakotas standards are similar)

PM-10	50 ug/m3 annual avg
	150 ug/m3 24-hr avg*
Sulfur Dioxide	0.02 ppm annual avg
	0.10 ppm 24-hr avg*
	0.50 ppm 1-hr avg**
Carbon Monoxide	23 ppm hourly avg*
	9.0 ppm 8-hr avg*
Nitrogen Dioxide	0.05 ppm annual avg
	0.30 ppm hourly avg*
Ozone	0.10 ppm hourly avg*
Lead	1.5 ug/m3 90 day avg
Foliar Fluoride	35 ug/g grazing season avg
	50 ug/g monthly avg
Settled Particulate Matter (dustfall)	10mg/m2 30-day avg
Hydrogen Sulfide	0.05 ppm hourly avg*
Visibility	particle scattering coefficient of 3X10-5 per meter annual avg***

* Not to be exceeded more than once per year.
** Not to be exceeded more than 18 times per year.
*** Applies to PSD mandatory Class I areas.

The Clean Air Act established the Prevention of Significant Deterioration (PSD) regulations which set limits for increases in ambient pollution levels and established a system for preconstruction review of new major air pollution sources. Three PSD classes have been established: Class I, Class II, and Class III. Class I areas consist of all international parks, national parks greater than 5,000 acres, national wilderness areas greater than 5,000 acres, and national wildlife refuges which existed on August 7, 1977, when the amendment was signed into law.

Protection of air quality is provided to Class I areas by severely limiting the amount of additional human-caused air pollution which can be added. All other areas, except non-attainment areas, are classified as Class II in which a greater amount of additional human-caused pollution may be added. In no case, however, may pollutant concentrations exceed the national or state ambient air quality standards.

Dakotas Standard #5: Habitats are maintained and/or restored, where appropriate, for healthy, productive and diverse populations of native plant and animal species.

Indicators include:

- plants and animals are diverse, vigorous and reproducing satisfactorily; noxious weeds are absent or insignificant in the overall plant community
- spatial distribution of species is suitable to ensure reproductive capability. These species may include special status species (Federally threatened, endangered, candidate or Montana/North Dakota/South Dakota species of special concern).
- species diversity (including plants, animals, insects and microbes) is present
- livestock grazing systems are designed to maintain rangeland health and to ensure a variety of plant communities are present
- connectivity of habitat or presence of corridors to prevent habitat fragmentation.

Background Information

No single factor or characteristic of a site can provide a complete picture of either that site's condition or the direction of its successional change.

BLM is charged with managing and developing habitat for a large variety of fish, wildlife and special status species of plants. Basic habitat considerations can be categorized as including food, water, cover, and space. Specific habitat requirements often vary depending on what geographic area is being considered, species which are present, and the nature and extent of other uses which may be competing. A review of components of the above listed standards (Proper Functioning Riparian-Wetland areas, Uplands and Water Quality) will provide many of the requirements needed to achieve fish, wildlife, and special status plant habitat.

Grazing Management Guidelines

Guidelines for grazing management are preferred or advisable approaches to grazing management practices determined to be appropriate to ensure that standards can be met or that significant progress can be made toward meeting the standard(s).

Guidelines are provided to maintain or improve resource conditions in upland and riparian habitats available for livestock grazing. In both riparian and upland habitats, these guidelines focus on establishment and maintenance of proper functioning conditions. The application of these guidelines is dependent on individual management objectives. Desired future conditions in plant communities and streambank characteristics will be determined on a site specific basis.

Dakotas Guideline #1: Grazing will be managed in a manner that will maintain the proper balance between soils, water, and vegetation over time. This balance varies with location and management objectives, but acceptable levels of use can be developed that are compatible with resource objectives.

Dakotas Guideline #2: Manage grazing to maintain or improve watershed vegetation, biodiversity, and floodplain function. Maintain or improve riparian vegetative cover and structure to trap and hold sediments during runoff events to rebuild streambanks, restore/recharge aquifers, and dissipate flood energy. Utilize management practices that promote deep-rooted herbaceous vegetation to enhance streambank stability, and the growth and expansion of woody species to provide wildlife habitat.

Dakotas Guideline #3: Pastures and allotments will be evaluated for sensitivity and suitability for livestock grazing. Unsuitability or potentially unsuitable areas may be excluded from grazing, and/or managed more intensively.

Dakotas Guideline #4: Management strategies for livestock grazing will ensure that long-term resource capabilities can be sustained. Natural and management-induced streambank alteration, and utilization of herbaceous and woody vegetation are critical factors which must be evaluated in any grazing management plan. Acceptable levels of streambank alteration and herbaceous/woody utilization shall be identified on a site specific basis, and used in terms and conditions. Compatible seasons and duration of use, rest periods, stocking rates, structural facilities, and management activities can then be designed to ensure that standards are achieved.

Dakotas Guideline #5: Frequency of grazing and extent of defoliations will be managed to promote desired plants and plant communities, based on the rate and physiological conditions of plant growth. To meet these plant growth considerations the following may be applied: no grazing unit should be grazed for more than half the growing season of key plant species; periods of use throughout the growing season (early, mid, late) should be alternated from year to year; and pastures should be deferred from grazing at least once every 3 years or until seeds set. The season of use should be alternated from year to year to allow for regeneration of woody and herbaceous species. Rather than using calendar dates, stages of plant growth, length of grazing period, and target utilization levels, should be used to determine when livestock should be moved to another grazing unit. Caution should be used to avoid early spring grazing use when soils and streambanks are wet and susceptible to compaction and physical damage that occurs with animal trampling.

Dakotas Guideline #6: The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions and processes of those sites.

Dakotas Guideline #7: Locate permanent facilities (e.g., corrals, water developments) away from riparian-wetland areas.

Dakotas Guideline #8: Supplemental salt and minerals should not be placed adjacent to watering locations or in riparian-wetland areas. These should be placed in upland sites to draw livestock away from watering areas, or other sensitive areas, and to contribute to more uniform grazing distribution.

Dakotas Guideline #9: For the guidelines of noxious weed management refer to "Guidelines for Coordinated Management of Noxious Weeds in the Greater Yellowstone Area". These guidelines provide a unified effort in developing a public awareness program; a prevention program; and a common inventory, mapping, monitoring, and reporting procedure. An overall Management Plan and specific action plans can be developed for logical units of land called Weed Management Areas. Guidelines for noxious weed control management must meet or exceed state laws.

Dakotas Guidelines #10: Grazing management practices should maintain or promote the interaction of the hydrologic cycle, nutrient cycle and energy flow that will support the appropriate types and amounts of soil organisms, plants, and animals appropriate to soil type, climate and landform.

Dakotas Guidelines #11: Livestock grazing practices should be utilized to protect water quality or restore water quality to water bodies not fully supporting designated beneficial uses (e.g., water quality limited streams). BLM management actions or use authorizations do not contribute to pollution that violates the quantitative or narrative North or South Dakota Quality Standards.

Dakotas Guidelines #12: Grazing management practices should maintain, improve or restore habitat to assist in the recovery or promote conservation of Federally listed threatened, endangered, and sensitive plant and animals.

Dakotas Guidelines #13: Grazing management practices should maintain or promote the physical and biological conditions to sustain native populations and communities, and should emphasize native species in support of ecological functions.

Dakotas Guidelines #14: Non-native plant species are used only in those situations in which native species are not readily available in sufficient quantities or are incapable of maintaining or achieving properly functioning conditions and biological health.

ALTERNATIVE 3 - FALLBACK STANDARDS AND GUIDELINES

In the event that S&Gs are not completed and in effect by August 12, 1997, and until such time as State or regional S&Gs are developed and in effect, the Fallback S&Gs will be implemented (refer to pages 22 and 23 of the draft EIS).

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DETAILED STUDY

The following alternatives were considered during scoping for this analysis, and were eliminated from detailed study: No Grazing; Designating areas of critical concern (ACEC) and research natural areas (RNA); Reintroduction of bison on public rangelands to achieve S&Gs; and developing guidelines for uses other than livestock grazing.

CHAPTER 3
AFFECTED ENVIRONMENT

Chapter 3 of the draft EIS and the supplement to the draft EIS for Standards for Rangeland Health and Guidelines for Livestock Grazing Management are incorporated by reference, in accordance with 40 CFR 1500.4(j) and (o), 1502.2 and 1506.4, with changes set forth in Chapter 5 of this document. The incorporated material can be found on pages 27 through 61 of the draft EIS and on pages 9 through 12 of the supplement to the draft EIS. The content is briefly summarized below. The public comments were reviewed, and a few modifications were made to the chapter. However, the changes do not affect the analysis or impacts of the alternatives. The changes are noted in Chapter 5. The public comments did not raise significant issues or information that would affect the adequacy of that analysis to support the selection of the preferred alternative.

Chapter 3 of the draft EIS and supplement to the draft EIS describes the physical, biological, social, and economic environment of MT/DAKs that would be affected by implementing the Preferred Alternative. The draft and supplement to the draft EIS describes resources of the land analyzed including vegetation, wildlife, water quality, recreation, wilderness, cultural resources, economic conditions, and social conditions.

RANGELANDS

This chapter describes the natural resources and economic values of rangelands and discusses factors that have influenced current conditions.

The BLM administers approximately 8.4 million acres within the EIS study area. The EIS study area generally encompasses two major geographic regions. The Northern Great Plains and the Northern Rocky Mountains in Montana. Most of the EIS study area is drained by the Missouri River and its tributaries.

Rangelands contain two basic types of vegetation communities: upland and riparian. Upland vegetation communities occur on dry sites and are by far the most widespread. Riparian vegetation communities occur in wet areas and occupy only one percent of rangelands.

Healthy riparian communities stabilize and protect streambanks from erosion. They help filter sediments, improve water quality, reduce flooding, recharge groundwater, and maintain streamflow. Riparian areas are also the most biologically productive and diverse habitats on public land. They provide food, water, cover, nesting areas, and protected pathways for wildlife movements and migrations. All fish and nearly all terrestrial wildlife species depend on riparian areas to survive.

When a stream loses watershed characteristics, it is said to be nonfunctioning. Nonfunctioning riparian communities cannot provide important watershed values and provide the amount and quality of habitat needed by fish and wildlife.

Once riparian areas become nonfunctioning, they usually will not recover without major changes in management. But, because they have good dry-season soil moisture, most riparian areas will respond relatively rapidly to management changes once disturbance factors are controlled. Many riparian areas have improved and have begun to function properly within five years after management changes. In some cases, restored riparian habitats have reestablished perennial streamflow in streams that were previously intermittent.

BLM is implementing a system based on whether rangeland conditions on a site can sustain natural plant communities and basic ecological functions where livestock grazing occurs. This system describes three categories of rangelands:

Proper Functioning - When vegetation and ground cover maintain soil conditions that can sustain natural biotic communities.

Functioning at Risk - When the capabilities of vegetation and soil are susceptible to sustain natural functioning biotic communities. Human activities, past or present, may increase the risks.

Nonfunctioning - When vegetation and ground cover are not maintaining soil conditions that can sustain natural biotic communities.

WILDLIFE AND SPECIAL STATUS SPECIES

In the MT/DAKs, federal land provides seasonal or yearlong habitat for over 600 species of fish and wildlife. Wildlife reflects the diversity and health of rangeland

vegetative communities and watersheds. Riparian habitats occurring within broad vegetative zones are important habitats on federal lands. Functioning riparian systems normally provide abundant food, cover, and water, and often contain some special ecological features that are not often found in upland areas. Riparian ecosystems can be extremely productive, and have diverse habitat values for fish and wildlife.

The EIS considers 11 threatened and endangered species in the analysis (identified by the USFWS), including the recently discovered threatened plant, Ute ladies' tresses.

ECONOMIC CONDITIONS

The description of economic conditions includes Montana and three counties in western South Dakota where livestock grazing on public lands may be affected by decisions in this EIS. North Dakota is not included because no effects to economic conditions are expected as a result of implementing either the preferred alternative or other alternatives.

Over the 15 year period from 1980 through 1994, total real personal income in Montana has grown over 27 percent. More than half of this growth has occurred since 1990, following the economic downturn which began in the mid-1980s. The top 3 sectors over the past 15 years in terms of labor income are services, state and local government, and retail trade, in that order.

Much of the income and employment growth in retail trade and services over the past five years can be attributed to increased recreation and tourism in the state. Activities such as hunting, wildlife viewing, hiking, and visiting historic sites have been increasing steadily, and public rangelands play a significant role in these activities. These new and expanding activities bring with them new businesses, different from the more traditional natural resource industries such as agriculture, timber, and mining; this in turn helps to diversify the state's economy.

In South Dakota over the 14 year period from 1980 through 1993 (county data was not available for 1994), total real personal income in the three-county area has grown about 39 percent. The top industries are federal civilian, services, retail trade, farming, state and local government, and construction.

Forage on BLM-administered lands in Montana makes up about four percent of total feed requirements of the state's cattle inventory. For sheep, public- land forage makes up about six percent of total feed requirements of the statewide inventory. In the three-county area in South Dakota, BLM forage makes up about two percent of total feed requirements for cattle and six percent for sheep.

The importance of federal rangelands to livestock production can also be measured by rancher dependency on public-land forage. Average dependency for permittees who graze cattle on public lands is 11 percent in Montana, and 12 percent in South Dakota. For sheep operators, average dependency is 35 percent.

CHAPTER 4
ENVIRONMENTAL IMPACTS

Chapter 4 of the draft EIS and supplement to the draft EIS for Standards for Rangeland Health and Guidelines for Livestock Grazing Management are incorporated by reference, in accordance with 40 CFR 1500.4(j) and (o), 1502.2 and 1506.4, with changes set forth in Chapter 5 of this document. The incorporated material can be found on pages 63 to 75 in the draft EIS and pages 13 to 19 of the supplement to the draft EIS. Its content is briefly summarized below. A team reviewed the public comments and concluded the analysis in the draft EIS and the supplement to the draft EIS adequately describes the environmental consequences. The public comments did not raise significant issues or information that would affect the adequacy of that analysis to support the selection of the Preferred Alternative. Some changes were made as a result of public comment. However, the changes reflected in the Preferred Alternative are within the scope and analysis of the draft and supplement to the draft EIS and do not alter the analysis of the environmental consequences contained in that document.

CUMULATIVE EFFECTS

The regulations for implementing the National Environmental Policy Act (NEPA) require federal agencies to analyze and disclose cumulative effects - effects that result from the incremental impact of an action "when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." (40 CFR 1508.7).

Under the proposed action, a reduction of about 22,000 AUMs is the total effect of implementing standards and guidelines. This reduction in AUMs includes reductions that would have taken place under existing land use plans in the study area. The alternatives analyzed in the draft EIS would be implemented along with many other actions, events, and trends taking place at local, regional, national and international levels. For example, actions on federally administered lands may have beneficial or harmful impacts to systems on private lands. The analysis in Chapter Four of the draft EIS considered these changes.

For example, livestock grazing on federal lands is not the only factor that affects rangeland vegetation. Climate, recreation and wildlife use, management practices on adjoining lands, and the introduction and spread of noxious weeds are also key considerations. The future of rangeland vegetation cannot be predicted by considering changes in livestock grazing management alone.

Similarly, BLM rangeland management policies are not the only factors that affect the western livestock industry and the communities in the study area. Also of major importance are regional population growth; changing demographics, lifestyles, property values, and agricultural subsidies; economic competition and restructuring; and changing laws, policies and practices being implemented by other federal and state agencies.

Population growth and demographic changes will continue to transform rural economies. Population growth in many rural communities in the study area, while contributing to economic growth and diversification, will continue to diminish the relative importance of agriculture in those communities. But economic diversification also offers more chances to earn off-ranch income and helps families maintain their ranches. Communities that continue to lose population and whose economies are in decline may be further strained by decreases in livestock production.

Land use changes, such as increased recreation use and subdivision of privately owned ranchlands, are both a cause and a result of trends in agriculture. Economically marginal ranches might be encouraged to sell to developers where the demand for rural homesites is increasing. As a result, agricultural production would further decline in such areas. Increased outfitter and guide activities, which encourage more recreational use of rural areas and offer more income-earning potential to ranches, might contribute to population growth and in turn accelerate changes in land use away from agriculture.

Demographic and land use changes might increase or decrease a community's tax base. Where economies are stable or growing, the tax base would likely be stable. Where populations continue to decline or livestock production significantly declines, the tax revenues might continue to decline.

Changes in land use might accelerate the loss of access to federal land and access to and across private land. Reduced access might increase the demand for land adjustments (such as land exchanges) by BLM to obtain more access to federal lands.

The protection and recovery of federally listed species and their habitats, are also likely to significantly change the way livestock grazing is managed on federal lands. Future activities designed to avert habitat loss and endangered species listings in the long term might help sustain livestock production.

Similarly, best management practices for livestock grazing, prompted by the need to comply with the Clean Water Act have been developed and are being implemented, and will lead to important changes.

A fundamental assumption of the analysis is that, with or without the standards and guidelines, the demand and need for changes in rangeland management will continue. These changes are likely to result in declines in livestock use on federal lands over the long term.

ALTERNATIVE 1: NO ACTION (CURRENT MANAGEMENT)

Grazing Management

Under current management direction, approximately 650 allotments (12 percent) would require changes in livestock grazing management to fully implement RMP/MFP decisions. The combined reductions and increases in livestock use would result in a net long term decrease of approximately 19,000 federal AUMs across the MT/DAKs area.

Upland Conditions

Under current management direction, there would be a very slow improvement in upland rangeland condition. Watershed quality would also improve very slowly over the long term, in response to increases in vegetation cover and litter.

Riparian Conditions

All existing RMPs and MFPs include riparian improvement objectives and identify livestock management practices to achieve desired improvements. Over the long term, proper functioning condition would be restored to most of the approximately 1,800 miles of riparian and wetland areas currently considered functioning-at-risk, and 670 miles considered non-functioning.

Wildlife and Special Status Species

Full implementation of existing RMPs/MFPs would have a long-term positive impact on most wildlife species and biological diversity in general, particularly in riparian habitats. Anticipated improvements of specific upland habitats currently in depleted or poor condition would be very gradual.

The anticipated long term improvement in upland, riparian and wetland conditions would generally have a beneficial effect on special status species. This would be particularly true for species dependent upon riparian areas and wetlands, given current management priorities. Upland species that prefer higher seral stages would also generally see gradual improvements in their habitats over the long term.

Economic Conditions

It is estimated that a net reduction of 19,000 AUMs would be needed to fully implement existing rangeland management decisions. The total economic impact would be an estimated loss of personal income of $548,000 annually and 22 jobs in Montana. In South Dakota, and increase of $14,000 in personal annual income and 1 job is expected. For most affected regions of Montana and South Dakota, these impacts would not be significant and are not likely to trigger other changes to overall economic activity.

ALTERNATIVE 2: PREFERRED ALTERNATIVE

The environmental consequences associated with the Preferred Alternative can be found in pages 71 through 75 in the draft EIS and pages 17 through 19 of the supplement to the draft EIS.

Grazing Management

Under the preferred alternative, approximately 920 allotments (17 percent) would require changes in livestock grazing management. The combined reductions and increases in livestock use would result in a net long term decrease of approximately 28,000 federal AUMs across the MT/DAKs area. This is approximately two percent of the total AUMs currently authorized by BLM within the EIS area. Most reductions would probably occur in allotments with high value riparian areas in non-functioning or functioning-at-risk condition.

Upland Conditions

Under the preferred alternative, improvement in upland rangeland condition would remain slow, although implementation of needed management changes would occur at a faster rate and would affect more allotments than under current management direction. Watershed quality would

also improve slowly over the long term, although somewhat faster and over a larger area when compared to current management.

Appendix E of the supplement to the draft EIS (pages 22 through 24) contains estimates from a preliminary application of the proposed upland standards to intensively managed allotments within the EIS study area.

Riparian Conditions

Under the preferred alternative, proper functioning condition would be reached sooner and on more allotments than with current management. Appendix E in the supplement to the draft EIS contains estimates from a preliminary application of the proposed riparian standard to intensively managed allotments within the EIS study area. Overall, about 1,800 miles of riparian areas functioning at-risk, and about 670 miles of riparian areas that are non-functioning would be improved.

Wildlife and Special Status Species

Implementing the proposed S&Gs would generally benefit wildlife in the short and long term, in both upland and riparian areas. Over the long term, S&Gs would help to ensure that site-specific, as well as landscape-level habitat needs are considered when developing allotment management objectives. Timely implementation of decisions and management actions to correct sub-standard conditions would reduce resource damage and allow conditions to improve sooner than they otherwise would.

The anticipated long term improvements in upland, riparian, and wetland conditions generally would have a beneficial effect on all wildlife, including special status species. Impacts would be similar to those described for the no action (current management) alternative; however, needed management changes would occur at a faster rate, and over the long term, would affect more allotments.

Economic Conditions

Under the proposed S&Gs, there would be an estimated 9,000 more AUMs lost than under current management, for a total net reduction of 28,000 AUMs. In Montana, the net reduction would be an estimated 29,000 AUMs. This represents just over two percent of all BLM permitted use in the state. South Dakota would see an estimated net increase of about 1,000 AUMs, representing about two percent of current permitted use.

In Montana, the estimated personal income loss would be $815,000 annually and 33 jobs. In South Dakota, there would be an increase of $29,000 in personal income annually and 1 job.

For the most affected regions of Montana and South Dakota, these impacts would not be significant and are not likely to trigger other changes to overall economic activity. Overall economic growth throughout Montana and the three-county area in South Dakota would more than offset economic impacts due to AUM reductions. Improved rangeland conditions over the long term would provide for a more sustainable resource base and livestock industry.

ALTERNATIVE 3 - FALLBACK STANDARDS & GUIDELINES

The long-term environmental effects from implementing this alternative would be essentially identical to the effects expected from implementing Alternative 2 - Preferred Alternative. There may be minor, short-term, local differences due to the lack of defined indicators and supplemental direction needed to implement the fallback S&Gs in a consistent manner. However, over time it is expected that needed indicators and guidance would be developed, and that they would closely resemble the indicators and guidance attached to the proposed regional S&Gs.

CHAPTER 5
CONSULTATION AND COORDINATION

Chapter 5 of the draft EIS and Supplement to the draft EIS for Standards for Rangeland Health and Guidelines for Livestock Grazing Management is incorporated by reference, in accordance with 40 CFR 1500.4(j) and (o), 1502.21 and 1506.4. The incorporated material can be found at pages 77 through 79 of the draft EIS and pages 20 through 21 of the supplement to the draft EIS. The content is briefly summarized below.

INTRODUCTION

This chapter is a restatement and revision of the draft and supplement to the draft EIS Chapter 5. The Consultation section below contains an update on Endangered Species Act Section 7 consultation. New sections include information on the distribution of the final EIS, and how public comments on the draft and supplement to the draft EIS were processed. These are followed by a section containing changes to the draft EIS resulting from a review of public comments.

The last section of this chapter, "Comments and Responses" includes a summary of the comments made during the public review periods for the draft and supplement to the draft EIS, and responses to those comments. It includes responses to comments that bear directly on the analysis of the draft EIS and supplement to the draft EIS. If several commenters raised the same issue, the team generally responded to it only once, rather than repeating the response at various places throughout the chapter.

CONSULTATION

During the preparation of the draft EIS and supplement to the draft EIS, BLM informally consulted on listed species with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act (ESA). Formal consultation has been completed. The USFWS concurred with BLM's determination that the Preferred Alternative would have "no effect" on threatened or endangered species (refer to Appendix L).

PUBLIC PARTICIPATION

An extensive public scoping process was conducted for Montana and the Dakotas standards and guidelines EIS effort. A Notice of Intent to prepare an EIS and to invite public comments and suggestions on the scope of the analysis was published in the Federal Register on November 30, 1996.

A scoping letter was distributed to a comprehensive mailing list of over 5,500 individuals in January of 1996. Over 1,000 individuals responded to the scoping letter by asking to remain on the mailing list. About 27 letters provided substantive suggestions on the EIS process. News releases were also issued in mid-January, 1996.

When the draft EIS was released, a total of 19 public meetings were held across the state to collect comments and provide information to the public on the standards and guidelines draft EIS. A public meeting was also held in western Montana when the supplement to the draft EIS was released. The following list provides the meeting location and dates, by district, that were held for the public.

Lewistown District

Glasgow, MT	November 18, 1996
Malta, MT	November 19, 1996
Havre, MT	November 20, 1996
Lewistown, MT	November 21, 1996
Great Falls, MT	November 21, 1996

Miles City District

Miles City, MT	December 2, 1996
Roundup, MT	December 3, 1996
Billings, MT	December 4, 1996
Terry, MT	December 9, 1996
Jordan, MT	December 10, 1996
Ridgeway	December 11, 1996
(half way between Ekalaka and Hammond, MT)	
Jordan, MT	December 20, 1996

Dakotas District

Belle Fourche, SD	December 4, 1996

Butte District

Helena, MT	December 9, 1996
Bozeman, MT	December 10, 1996
Dillon, MT	December 16, 1996
Butte, MT	December 17, 1996
Ennis, MT	December 18, 1996
Missoula, MT	March 20, 1997*

*The meeting in Missoula was for the supplement to the draft EIS.

DISTRIBUTION OF THE DRAFT EIS AND SUPPLEMENT TO THE DRAFT EIS

The draft EIS was distributed to all individuals and organizations that responded to the scoping letter, and to others known to be interested or affected. Over 1,800 copies of the draft EIS were distributed. There was a 90-day public comment period on the draft EIS. The supplement to the draft EIS was distributed to the same mailing list, plus a mailing list from the Upper Columbia River Basin project was used to supplement the original mailing list. Over 2,000 copies of the supplement to the draft EIS were distributed. A 60-day public comment period was held on the supplement.

DISTRIBUTION OF THE FINAL EIS

Copies of the final EIS have been distributed to all those individuals and organizations that were on the mailing list for the draft EIS and supplement to the draft EIS. Over 2,000 copies have been distributed. The final EIS includes: a statement of the purpose and need for the action; a description of alternatives, including the preferred alternative; a description of the affected environment and environmental consequences; an analysis of public comments and responses to comments; and other sections, as required.

RESOURCE ADVISORY COUNCILS (RACS)

Resource Advisory Councils (RACs) were chartered to provide advice on a number of resource issues, including the standards and guidelines EIS process. There are four RACs within the following Montana and Dakotas districts: Butte, Dakotas, Miles City and Lewistown Districts. The RACs are made up of 12-15 members representing various interests. The preferred alternative was developed in partnership with the four MT/DAKs RACs. The RACs met after the publication of the draft and supplement to the draft EIS to review comments and modify the preferred alternative. The RACs were also involved in reviewing comments relating to the S&Gs. They were provided with a list of comments and were asked to provide feedback as to how the comments should be responded to.

HOW PUBLIC COMMENTS ON THE DRAFT EIS WERE PROCESSED

Thirty-seven letters were received during the draft EIS comment period and 15 letters were received during the comment period for the supplement to the draft EIS. These also included comments collected during the public meetings. This chapter includes a description of the public comments on the draft EIS and responses to those comments. Comments have been addressed if they relate to inadequacies or inaccuracies in the analysis or methodologies used; identify new impacts or recommend reasonable new alternatives or mitigation measures; or involve substantive disagreements or interpretations of significance. If several commenters raised the same issue, the team generally responded to it only once, rather than repeating the response.

Responses to comments are of three kinds: a statement that the EIS has been revised in accordance with the information presented in the comment; an explanation of why the EIS text has not been revised in accordance with such information; or a clarification of issues peripherally related to the analysis of the EIS but outside its scope.

Public comments were carefully considered and used in the preparation of the final EIS. A number of clarifying statements and some expanded analysis has been added in response to comments. Some comments addressing clarification issues were incorporated in the document without changing the analysis. Other comments were beyond the scope of the analysis. The Preferred Alternative has been modified based on public comments.

The letters received included about 250 substantive comments in different program areas. Comments were grouped (refer "Response Categories") and summarized in a comment statement. Responses were developed for each of the comment statements. These are presented in this chapter under "Comments and Responses". The comment letters are not being reprinted in the final EIS, although they will be retained as part of the official record. All original letters have been kept on file in sequential order.

RESPONSE CATEGORIES

Riparian Health and Condition
Vegetation
Grazing
Associated Resources
Monitoring and Implementation

Process
Threatened and Endangered Plants and Animals
Economic and Social Impacts
Wildlife
Hydrology/Water Quality
Standards and Guidelines

CHANGES TO THE DRAFT EIS AND SUPPLEMENT TO THE DRAFT EIS

Public comments received on the draft EIS and Supplement to the Draft EIS did not necessitate extensive changes in the data, analyses, or conclusions. Changes generally clarified the analysis without altering it. In some cases, the analysis has been expanded with new information in response to comments. The conclusions of the analysis have not changed.

The standards and guidelines contained in the Proposed Action in the draft EIS have been modified and superseded by the Preferred Alternative. The standards and guidelines are intended to establish a direction toward restoration of rangeland health in areas where rangeland health has not yet been achieved. The standards and guidelines have also been reorganized and rewritten for clarity. These changes were made to respond to internal review and public comment on the draft EIS and the Supplement to the draft EIS. Changes to the Proposed Action have been incorporated directly into the Preferred Alternative in Chapter 2 of this document.

Two new appendixes were added to this Final EIS, Appendix K (Biological Opinion) and Appendix L (Letter of Concurrence). All references to Category 1 and Category 2 species were deleted, and replaced with Candidate species. A cumulative impacts section was also added to Chapter 4 of this FEIS.

Following are changes to other portions of the draft EIS derived from both public comment and internal agency review. Unless otherwise noted, changes referred to below are being made to the draft EIS.

Text Changes

Make the following changes to the draft EIS:

Chapter 2: Refer to text changes contained in this FEIS, including changes made to Guidance Common to All Alternatives and the Preferred Alternative.

Page 23, Grazing Administration section under No Action, change last sentence to read: "Full implementation would require about 25-30 years".

Page 26, Alternatives Considered but Eliminated from Further Detailed Study, add the following. "Reintroduction of bison on public rangelands to achieve Standards and Guidelines: during the comment period for the supplement to the draft EIS, a suggestion was raised to reintroduce bison to public rangelands to achieve the standards and guidelines. This was not considered for several reasons. Public lands are managed for multiple use. Livestock grazing is a viable use of public lands. The BLM administers only 8.4 million acres in the EIS study area, which accounts for about 8.6 percent of the total land area in Montana, and about 1 percent of the total land area in North and South Dakota. In addition, most of the public land within the EIS study area consists of small, isolated parcels intermingled with private lands. Therefore, other governmental agencies and private land owners would need to be involved to allow the reintroduction of bison to occur. The BLM alone does not have the authority to reintroduce bison as native herbivores."

Page 32, column 2, fourth paragraph. The first sentence now reads: "One indicator of ecological stability, and subsequent health, is the presence of all age classes (seedling, sapling, pole, mature, decadent, and dead) of tree and shrub species where the potential exists".

Page 32, column 2, fifth paragraph. The second sentence now reads: "Large amounts of decadent and dead woody material can indicate severe stress due to high levels of browsing or physical damage".

Page 33, column 1, third paragraph. Delete the following sentence: "However, dense canopy covers of juniper, and other tree species, can greatly reduce the herbaceous understory. This reduces total root mass and overall protection of the banks".

Page 36, column 1. Add the following after the first full paragraph (starting with "Sediment"): "All living organisms are dependent on oxygen in one form or another to maintain the metabolic processes that produce energy for growth and reproduction. Temperature has the greatest affect on the solubility of oxygen in water. Dissolved oxygen concentrations (DO) is a function of water temperature, altitude and barometric pressure. The ability of water to hold oxygen decreases with the increase in temperature, altitude and dissolved solids (TDS). Because rates of biological oxidation increase with temperature, and oxygen demand increases accordingly, high temperature conditions, where dissolved oxygen is least soluble, are of greatest concern to land managers. Most of the critical conditions related to dissolved-oxygen deficiency occur during the summer months when temperatures are high and solubility of oxygen is at a minimum. As streamside vegetation is reduced, water column shading decreases. This

reduced shading increases solar radiation and water temperature increases can occur. As streambanks are broken down by livestock trampling, stream channels become wider and shallower which also allows for increased water temperatures and therefore decreased DO".

Page 36, column 2, last sentence of the Water Quality Section (before Air Quality). Change the last sentence to read: "An example of water quality standards for each state are included in Appendix C".

Page 42, column 1, Special Status Species - Plants section: Add the following at the end of the first paragraph in this section. "A population of Ute ladies' tresses (Spiranthes diluvialis), a threatened plant, was recently discovered on private land in Jefferson County, Montana. Ute ladies' tresses orchid is endemic to moist soils near springs, lakes or perennial streams. The elevation of known occurrences is 4,200 to 7,000 feet. A draft Recovery Plan has been prepared for the species by the U.S. Fish and Wildlife Service".

Page 45, column 1, second paragraph. Delete the last sentence of the second paragraph (starting with "The period ends with ..."). Replace with the following sentence, "Bison hunting, however, remained the main subsistence focus until the complete desiccation of the bison herds by immigrant settlers."

Page 45, column 1. Add the following new paragraph after the second paragraph: "Between 1850 and 1890 Native Americans were subjected to a series of devastating events which would leave an indelible imprint on Native American culture in the three state study area. First, mining and cattle interests demanded protection from the Native population. The U.S. government sent the Army to end Indian opposition to immigrant settlement of their lands. Second, with the defeat of tribal groups, Native Americans were told to move to specific reservations. Third, hide hunters, miners, and cattlemen eliminated the bison herds, the primary source of subsistence for Native Americans, by the early 1880's. All of these events, factored with an earlier 1837 small-pox epidemic, had a lasting and devastating effect on the Native American community in the three state area (Malone and Roeder, 1976). An effect which likely continues to this day."

Page 65, column 2, last paragraph, last sentence. Change last sentence to read: "Full implementation of needed management changes would require about 25-30 years".

Page 67, column 2, Threatened and Endangered Species section. Add the following paragraph at the end of the section: "The anticipated long term improvements in riparian and wetland conditions would generally have a beneficial effect on Ute ladies' tresses if found to be present on BLM land".

Page 68, column 1, last paragraph, second to last sentence. Change to read: "Full implementation would take about 25-30 years".

Page 71, column 2, last sentence in Grazing Management section. Change to read: "Full implementation of needed management changes would require about 20-25 years, given current staffing and funding levels".

Page 73, column 2, Threatened and Endangered Species section. Add the following paragraph at the end of the section: "The anticipated long term improvements in riparian and wetland conditions should generally have a beneficial effect on Ute ladies' tresses if found to be present on BLM land".

Page 74, column 1, second paragraph in Economic Impacts section, third sentence. Change to read: "Full implementation may take about 20-25 years".

Glossary

Make the following changes:

Page 82, column 1: Delete Category 1 and Category 2 species and the definitions.

Page 85, column 2, Guideline, change definition to read: "Guideline: Guidelines for grazing management are types of grazing management methods and practices determined to be appropriate to ensure that standards can be met or that significant progress can be made toward meeting the standard."

Page 86, column 2, after "Lek", add the following definition: "Lentic: Standing water habitats such as lakes, ponds, seeps, bogs and wet meadows."

Page 87, column 2, Objective, change definition to read: "Objective: Objectives are subordinate to goals, more narrow in scope and shorter in range. Objectives must have products or achievements that are measurable."

Page 89, add the following definition: "Riparian Area: Riparian area is defined as a form of wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence. Lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels are typical riparian areas. Excluded are such

sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil."

Page 90, column 2, Standard, change definition to read: "Standard: Standards for rangeland health are expressions of levels of physical and biological condition or degree of function required for healthy, sustainable rangelands."

References

Add the following citations:

Committee on Rangeland Classification. Rangeland Health: New Methods to Classify, Inventory, and Monitor Rangelands. Board on Agriculture, National Research Council, National Academy Press, Washington D.C. 1994.

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Reference TR 1737-1; July 1987.

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USDI, Bureau of Land Management. Riparian Area Management: Process for Assessing Proper Functioning Condition for Lentic Riparian-Wetland Areas. Technical Reference TR 1737-11; September 1994.

USDI, Bureau of Land Management. Riparian Area Management: Riparian and Wetland Classification Review. Technical Reference TR 1737-5; 1990.

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COMMENTS AND RESPONSES

Comments have been addressed if they relate to inadequacies or inaccuracies in the analysis or methodologies used; identify new impacts, recommend reasonable alternatives or mitigation measures; or involve substantive disagreements or interpretations of significance. The comments and responses are presented in the following categories: Riparian Health and Condition, Vegetation, Grazing, Associated Resources, Monitoring and Implementation, Process, Threatened and Endangered Plants and Animals, Economic and Social Impacts, Wildlife, Hydrology/Water Quality, and Standards and Guidelines

Riparian Health and Condition

1. **Comment**: The statement that the clearest indicator of ecological stability in riparian systems is the presence of all age classes can be misleading. Cottonwoods often establish after catastrophic disturbance. These stands are single-age by nature, and recruitment will not occur under mature trees in most cases. It would be better to state that reproduction and recruitment of dominant species should occur in environments where it is expected.

> **Response:** As stated in the DEIS (p.33), no single factor or characteristic of a riparian site can provide a complete picture of that site's health or the direction of its successional change. Because these systems are inherently dynamic, riparian sites will often contain a mix of indicators.

2. **Comment:** Is there evidence that heavy browsing will cause an abundance of dead and decadent stems in riparian woody species? Heavy browsing will undoubtedly enhance dieback of plants that are already stressed by other grazing related problems such as lowering of the water table. However, heavy browsing of healthy willows is generally expected to result in increased vegetative vigor, dense branching, and lower levels of dead stems. Willow stems may become decadent and die simply due to old age. Heavy accumulations of dead stems may indicate fire suppression or lack of browsing.

> **Response:** We do not feel that heavy browsing increases vegetative vigor. We agree that decadence occurs in healthy riparian areas. However, large amounts can indicate severe stress from over-browsing, dewatering, fluctuations in climate or cyclic insect infestations. Large amounts of decadence can affect the overall health and physical factors such as streambank integrity, channel incisement and lateral cutting. This is why it is only one of the indicators of health.

3. **Comment:** Many reservoirs were developed for stock and wildlife water. We encourage that man made water storage facilities constructed primarily for livestock and wildlife not be included in the definition of lentic riparian wetland areas.

> **Response:** Some small livestock reservoirs and pits have few values other than livestock water. The decision to manage these as lentic areas will be done on a case by case basis, based on the values associated with each one. A definition of lentic has been added to the glossary.

4. **Comment:** We strongly recommend using findings by Wayne Elmore and the National Riparian Team, before

changing management of any sort on allotments, and incorporate their findings into this EIS.

Response: We assume the comment is addressing functioning condition analysis. The definition of functioning condition is the same across the Bureau. Our evaluations are based on the same elements as the rest of the Bureau.

5. **Comment:** Remove the fourth paragraph on p.32 of the DEIS, which begins "one of the clearest indicators..". There are more woody riparian types which don't follow the "rules" than which do. For these types, having all age classes probably means that there has been significant disturbance throughout the history of the stand. Even aged stands of these species may be more indicative of ecological stability, and subsequent health, than multiple aged stands. In many of Montana's riparian areas, succession toward the potential natural communities can be the result of disturbance-caused dewatering and consequently those vegetative changes can be considered as signs of instability, rather than stability (figure 3.1). At the same time, many of those types would go toward the same climax community without the disturbance, as the sites are often quite dry anyway. Only in the most obvious of cases can one know the cause of succession and be able to make a call on stability or health. Finally, the description of early seral stability is simply not true. If you are in an area which does have the potential for climax, riparian vegetation, but which is now occupied primarily by early seral vegetation, the presence of climax species isn't bad.

Response: As stated in the DEIS (p.32), no single factor or characteristic can provide a complete picture of a site's health or successional changes. Reproduction of woody vegetation is one of these indicators. We agree with the commenter's main point that riparian areas are complex and no single rule can apply. That is why BLM uses several factors to evaluate health.

6. **Comment:** There are many times when large amounts of dead and decadent material indicate little or no browsing. One of the things livestock do is knock dead branches off of willows and other shrubs. All else considered, if someone described a stand of woody riparian plants as having a large amount of dead and decadent material, I would be more likely to speculate on the very low browsing pressures rather than high.

Response: The paragraph referred to discusses and acknowledges dewatering and other items as influencing dead and decadent material. The commenter does not argue the health of an area being influenced by dead and decadent vegetation, which is the major point that is valid. Refer to text changes on p. 32 of the DEIS, column 2, fourth paragraph. The first sentence now reads: One indicator of ecological.... Also, in the same column, fifth paragraph, the second sentence now reads: "Large amounts of decadent and dead woody material can indicate severe stress due to high levels of browsing or physical damage."

7. **Comment:** Skeptical about the idea concerning the excessively dense canopies of junipers and other trees, a citation is needed for that idea. I would like to see the data showing that with increasing tree canopy, there is a reduction of the "total root mass and overall protection of the banks". Junipers often have a sparse understory. Assume equal amounts of above and below ground biomass for both trees and herbaceous plants on a site. To result in a net loss of roots, each additional juniper must result in a net loss of above ground biomass. There could be problems due to the loss of soil surface protection cover, sediment trapping ability, biodiversity, or surface layer binding, with the loss of herbaceous understory species.

Response: A monoculture of juniper with little understory of other plants is a common occurrence throughout the west. The section acknowledges the lack of documented evidence and the information is presented as "...some generalizations can be made". The sentence was added based on comments from a Resource Area. The following sentence has been omitted in the EIS on p.33, column 1, third paragraph: "However, dense canopy covers of juniper, and other tree species, can greatly reduce the herbaceous understory. This reduces total root mass and overall protection of the banks".

8. **Comment:** Have gradual, long-term (10-30 years) improvements to riparian areas been documented while grazing continues in these areas? The DEIS cites no scientific studies to support these claims. There have been studies showing improvement compared to resting allotments. Please cite these studies or refrain from making these claims.

Response: BLM has implemented management changes on many allotments to improve riparian areas and our monitoring studies have shown improvement.

9. **Comment:** The DEIS lacks critically important environmental information regarding specific riparian areas, their condition and the beneficial uses they support or should support.

Response: Information on the condition of riparian areas is contained on page 33 of the DEIS.

10. **Comment:** It is unclear what is meant by Appendix E (Water Quality). Please explain. We suggest that BLM utilize all of the information from reports prepared by all three States to comply with CWA Sections 303(d), 305(b) and 319(a).

Response: In numerous places in the DEIS (pp. 6, 7, 33, 36, etc.) BLM refers to its water quality obligations. Page 36 the DEIS refers to Appendix E where all three State 305(b) reports were used as a source of information to estimate affects of preliminary implementation of the proposed standards. This was an estimate based on available information and the 305(b) report from the states. Once the Standards are final, on the ground visits will be made to assess whether the standards are being achieved.

Refer to 305(b) report, which was provided to both EPA Region VIII and the Montana Operations office. This report describes our MOU with the State of Montana and our designated management agency status responsibilities. This would also explain how BLM discusses water quality standard compliance with the State. BLM has chosen not to discuss in this document draft narrative biological standards that have been under development for over ten years. The 305(b) report has been referenced in the bibliography in the EIS.

11. **Comment:** Add BLM checklists and checklist guidance for determining proper functioning condition (PFC) to the appendix to allow the public to better understand how PFC determinations will be made.

Response: The riparian checklist elements are contained in Chapter 2 in each RACs' riparian standard as indicators by which to determine if the Standard of PFC of riparian areas is being achieved. The methodologies for determining whether the standards are being achieved was not included because of their length. Technical references on monitoring riparian areas are referenced in the final EIS.

Vegetation

1. **Comment:** Weed control programs may in some cases result in the loss of biological diversity. Herbicide application may pose a threat to some rare plant species. These potential impacts should be recognized, analyzed and mitigated when possible.

Response: Integrated weed management recommends a full range of options to control weeds, including biological, mechanical and grazing, as well as the use of chemicals. However, the EIS states that priority will be given to the use of effective, nonchemical methods when and where feasible.

2. **Comment:** The document contains several references to Category 1 and 2 Federal candidate species. The USFWS has published and updated notice of Review of plant and animal taxa that are candidates for listing as threatened or endangered in the February 28, 1996 Federal Register. Beginning with this notice, the Service recognized as candidates only those plant and animal species for which the service has sufficient information on their biological status and threats to propose listing them as endangered or threatened under the ESA. Formerly, such species were considered Category 1 candidate species. The service will no longer maintain a list of Category 2 candidates. Although candidate species receive no statutory protection under the Act, the service encourages the conservation of candidates through partnerships and in environmental planning.

Response: The EIS has been modified to replace references to Category 1 species with candidate species; and has omitted reference to Category 2 terminology.

3. **Comment:** What are adequate amounts of vegetative ground cover? Reference to Clary and Webster study that suggest 4-6" stubble height, which has become the norm. Stubble height is a measure of utilization at a certain point in time for a given plant. The height of a plant depends upon the kind of plant, fertility of the sight, the amount of moisture the plant receives, etc. It does not measure the rate of recovery of a riparian area after a disturbance. Studies raise questions about the effectiveness of the stubble height standard and guidelines in managing riparian areas.

Response: Adequate amounts of vegetative ground cover for riparian areas will depend on site specific situations. This is why there is not a stubble height standard or guideline. If necessary to meet or make significant progress towards standards, a residual stubble height could be placed as terms and conditions of the livestock use authorization.

4. **Comment:** Uplands are key to addressing grazing pressure on the riparian areas. More attention should be directed to uplands and areas in late seral condition.

Response: We agree that uplands are a critical component to successful rangeland management. Both upland and riparian standards are proposed to ensure proper management of the total ecosystem. Those tools that best accomplish the desired goals and objectives can be applied through guidelines and terms and conditions.

5. **Comment:** The DEIS fails to describe the associated plant species that grow within prairie dog colonies due to the digging and aeration of soils. The diversity of plant life on prairie dog colonies may actually be beneficial to livestock. Although it is true that grasses are shorter on prairie dog towns, and thus provide less actual food bulk, researchers have proven that both nutrient content and digestibility are greater than that of grasses growing on equivalent rangelands lacking prairie dogs. This fact should be made clear in the EIS.

Response: We agree with the comment. The DEIS p. 39 acknowledges prairie dog habitat and preferential ungulate grazing on prairie dog colonies, especially by bison, cattle and pronghorn.

6. **Comment:** Preventing the spread of noxious weeds is a high priority. The denial of motorized vehicle off road travel, with the exception of maintaining fences, water and moving livestock by the permit holder would greatly reduce the spread of noxious weeds.

Response: There are many users of public lands such as ranchers, oil and gas activities, utility companies, etc., as well as the general public. The BLM is working with all land users of public lands in trying to raise awareness of the threat of noxious weeds on all lands and to prevent or slow down their spread. The BLM will continue to work with and educate all public land users to reduce the spread of noxious weeds. The BLM encourages cooperative integrated weed management programs where all land users are part of the solution as well as possible causes of the noxious weed problem.

7. **Comment:** The significance of the ecological status table and vegetative trends should be emphasized in the comparison table.

Response: The RR'94 FEIS supports the importance of this data, and the information presented in Tables 3-2 (ecological status) and 3-3 (vegetation trends) of the DEIS maintains this support.

8. **Comment:** Concern about the validity of the functional ratings (based on single observation) that indicate 900 allotments are likely to be affected by implementation of S&Gs during the foreseeable future because they presently appear to be not meeting one or more standards. The Bureau should develop and implement a monitoring program to assess functional status and trend of riparian areas before S&Gs are implemented.

Response: The validity of the preliminary rating of 900 allotments will need to be verified, in some cases, by on-the-ground analysis prior to determination of whether standards are being met. (Note: these numbers have changed slightly with the supplement to the DEIS. There are 920 allotments that will likely be affected by the Preferred Alternative. Refer to pp. 22-24 of the supplement to the draft EIS).

9. **Comment:** Introduced species (i.e., crested wheatgrass) from previously plowed fields need to be managed differently from native species.

Response: We agree and feel it will be necessary to put uplands in proper functioning condition. Management of introduced species (i.e., crested wheatgrass) is discussed on p.42 and p.73 of the DEIS.

10. **Comment:** The concept of achieving a desired plant community (DPC) implies that a habitat type or plant community can achieve a certain stage of development or evolution, and that at that point, it will remain in a perpetual state if not disturbed beyond certain physical limits. This theory is not correct in that a given habitat type or plant community may occupy more than one stable state, and once a community has been changed through a severe impact it may never return to the stable state desired under the theory of DPC. How will BLM be applying the concept of DPC with regards to certain watersheds or other rangelands that have been altered so as to be significantly different from the proposed DPC?

Response: BLM regulations require standards address, among other things, habitat quality for native plants and animals and populations and communities. BLM chose to maintain as much flexibility as possible by including the desired plant community and the desired future condition as well as the native communities concept within the management scheme.

Grazing

1. **Comment:** Reductions in AUMs may not necessarily reach desired goals. If reductions in AUMs are to take place, they should only occur on allotments where there is clear scientific evidence which supports a reduction in livestock grazing will move the allotment closer to the desired goal.

Response: We agree that reducing AUMs may not always be the appropriate or only option required to meet the standards. However, it is still a viable option. Other livestock management options include changing the season of use, range improvements, change of grazing systems, etc.

2. **Comment:** Determine suitability first prior to authorizing livestock grazing.

Response: It is BLM's policy to achieve Rangeland Health Standards through management of existing uses when feasible. What makes an area unsuitable for grazing is whether or not it can be grazed and still achieve the Standards. We must recognize that areas found not to be meeting standards, and where livestock are a significant factor in not achieving standards, did not occur within a short period of time. Therefore, BLM will work with livestock permittees and other interested parties to take appropriate action that will make significant progress towards achieving the standard. Appropriate action is that which will result in significant progress towards fulfillment of the standards and conformance with the guidelines, that is, improvement of resource conditions on the ground. It may include actions such as deferment of grazing of key plant species or alternating growth season use to allow for regeneration of woody species, adjusting the season or duration of livestock use, modifying the frequency of grazing periods, establishing target utilization levels for herbaceous and woody vegetation and allowable streambank alteration, reducing livestock stocking rates, and modifying or relocating range improvements. Standards for Rangeland Health must be met. Livestock use that can take place and achieve the standards will be permitted. If a livestock permittee can not or is unwilling to graze livestock in a manner that will achieve or make significant progress towards the Rangeland Health Standards, then the area may be unsuitable for livestock grazing. Portions of allotments may be excluded from livestock grazing if that portion is causing the larger area to not achieve standards.

3. **Comment:** S&Gs should be focused on those allotments classified in the "I" (improvement) category. Opportunities for positive economic return from public investments are available for these lands, thus we suggest they be targeted for improvement.

Response: It is anticipated that many of the "I" allotments will be high priority allotments for evaluation.

4. **Comment:** What method was used to arrive at the stocking rate decreases proposed in the EIS?

Response: Current monitoring data on file and professional judgements were used to estimate possible stocking rate reductions. If stocking rate decreases are necessary, they will be accomplished only after consultation, cooperation and coordination with affected and interested parties, in accordance with the regulations.

5. **Comment:** Severe trampling for an extended period of time is detrimental, but the hoof action of ungulates is a tool used by nature to work and build the soil and to change land forms such as sloping sheared banks. Hoof action and trampling is natural and healthy but the time factor has to be controlled.

Response: Guidelines represent a mix of livestock grazing management tools designed to achieve healthy public rangelands as defined by the standard.

Streambank alteration or trampling by livestock increases erosion and impairs streambank, channel and riparian function. It is widely recognized that streambank alteration by livestock must be limited to levels that will still allow standards to be achieved. Streambank impacts are a significant component of the recently approved State of Montana Grazing Best Management Practices (BMPs) that was a coordinated effort by the livestock industry, public land managers and the state of Montana. Some relevant portions of those BMPs are as follows: "Promote deep-rooted streambank stabilizing vegetation in order to maintain overhanging banks. A grazing system designed to maintain or restore riparian conditions will: 1) specify grazing periods and outline specific recovery periods following grazing that are needed to maintain desired streambank integrity; 4) leave sufficient plant residue necessary to protect streambanks and filter sediments; 6) manage streambank shearing and trampling to meet objectives within the grazing strategy."

6. **Comment:** If agency grazing S&Gs result in the movement of livestock off isolated parcels (rangelands), these grazing units will be lost and the isolated deeded and state lands will be rendered useless.

Response: The BLM is committed to livestock grazing as an accepted use of the public land. Land patterns are a good example of why consultation, cooperation and coordination is needed in the management of healthy rangelands.

7. **Comment:** Placement of salt is a very site specific decision based on attempting to disperse the grazing ungulate and possibly manipulating the resources with hoof action to address a problem. Categorical prescriptions should not be made.

Response: The specifics of salt placement will be addressed in the terms and conditions. The Butte Guideline #7 offers general guidance for the placement of salt/minerals.

8. **Comment:** Developing water off the wetland areas would help sustain rangeland health. Development of wells,

pipelines and water tanks will insure adequate water supplies away from the riparian areas, benefitting cattle and wildlife.

Response: We agree that developing water away from riparian/wetland areas would help maintain or improve riparian/wetland condition. These types of range improvements will be considered on a site-specific basis.

9. **Comment:** There is some confusion regarding the number of allotments which presently do not appear to meet the proposed standards. In several places (p.64) the EIS states that "most of the approximately 400 allotments which presently appear to be not meeting the proposed biological standard". In most places (and in Appendix E) it discusses 900 allotments (400 in uplands, and 500 in riparian areas), this should be consistent.

Response: In several places throughout the DEIS, including Appendix E, reference is made to about 900 allotments which appear to not be meeting one or more of the standards. It is further broken down to identify which of those allotments appear to not be meeting each of the standards. For example, about 400 allotments appear to not be meeting the Upland Standard, and about 500 allotments appear to not be meeting the Riparian Standard. (Note: these figures have been adjusted slightly in the supplement to the DEIS).

10. **Comment:** The discussion of an expected decrease of 27,000 AUMs of livestock grazing under the proposed action (p.71 and 74) is not consistent with the discussion in the summary of the EIS. According to the summary, a net reduction of about 8000 livestock AUMs out of a total of about 1.4 million AUMs within the study area is projected as a direct result of S&G implementation. The numbers should be consistent.

Response: Under current management (No Action Alternative), there is a reduction of 19,000 AUMs which would occur over the long term. Under the proposed action, there is an estimated reduction of 27,000 AUMs, which would occur. This includes the 19,000 AUM reduction planned under current land use plans, plus an estimated reduction of 8,000 AUMs as a direct result of implementing the standards and guidelines. (Note: these figures have been adjusted slightly in the Supplement to the DEIS.)

11. **Comment:** The DEIS has not clearly shown that it is in the public interest to continue livestock grazing on public lands. Public benefits versus cost should be revealed for all alternatives. Clarify how a federal grazing permit is granted and the process used and if access to public grazing resources is equal for everyone.

Response: Livestock grazing is one of the multiple uses of public rangelands authorized by FLPMA. Areas where grazing is not compatible with healthy rangelands would be determined as standards are applied. Livestock grazing privileges, qualified users, equal access, renewals, and appeals are issues relating to the grazing regulations and are not relevant to this EIS. The validity of funding associated with livestock grazing is not relevant to this EIS.

12. **Comment:** It is inappropriate to manage the rangeland/riparian ecosystem based on the allotment management framework because the boundaries are "political".

Response: The standards and guidelines are intended to establish a direction toward restoring rangeland health in areas where healthy rangelands have not been achieved. Because "political boundaries" do exist, consultation, cooperation and coordination are very important for ecosystem management.

13. **Comment:** Were variations in precipitation and periodic drought on different allotments taken into consideration?

Response: Allotments have not been visited to determine if Standards for Rangeland Health are being met. The validity of the preliminary rating of 920 allotments will need to be verified, in some cases, by on-the-ground analysis prior to determination of whether standards are being met. Variations in precipitation and periodic drought, as well as times of above normal precipitation will be taken into consideration when making determination of whether standards are being met and if livestock are a significant factor in not meeting standards.

14. **Comment:** Proper grazing pressure is essential for a healthy ecology. Preservation is not a good management tool, it promotes decadence and monocultures, not biodiversity.

Response: We agree that "proper" grazing pressure can be consistent with healthy functioning rangeland ecosystems. Livestock grazing will be authorized as long as it is done in a manner that does not prohibit achieving the Standards for Rangeland Health. Grazing of plants is also done by wildlife, including rodents and big game.

15. **Comment:** Comments on Appendix J, examples. Example #2: Do these "foreseeable changes" mean a decrease in AUMs? Example #3: Why are these changes expected to take so long to implement? Example #4: Why isn't short or long term rest considered an option in this case?

2. **Comment:** Determine suitability first prior to authorizing livestock grazing.

Response: It is BLM's policy to achieve Rangeland Health Standards through management of existing uses when feasible. What makes an area unsuitable for grazing is whether or not it can be grazed and still achieve the Standards. We must recognize that areas found not to be meeting standards, and where livestock are a significant factor in not achieving standards, did not occur within a short period of time. Therefore, BLM will work with livestock permittees and other interested parties to take appropriate action that will make significant progress towards achieving the standard. Appropriate action is that which will result in significant progress towards fulfillment of the standards and conformance with the guidelines, that is, improvement of resource conditions on the ground. It may include actions such as deferment of grazing of key plant species or alternating growth season use to allow for regeneration of woody species, adjusting the season or duration of livestock use, modifying the frequency of grazing periods, establishing target utilization levels for herbaceous and woody vegetation and allowable streambank alteration, reducing livestock stocking rates, and modifying or relocating range improvements. Standards for Rangeland Health must be met. Livestock use that can take place and achieve the standards will be permitted. If a livestock permittee can not or is unwilling to graze livestock in a manner that will achieve or make significant progress towards the Rangeland Health Standards, then the area may be unsuitable for livestock grazing. Portions of allotments may be excluded from livestock grazing if that portion is causing the larger area to not achieve standards.

3. **Comment:** S&Gs should be focused on those allotments classified in the "I" (improvement) category. Opportunities for positive economic return from public investments are available for these lands, thus we suggest they be targeted for improvement.

Response: It is anticipated that many of the "I" allotments will be high priority allotments for evaluation.

4. **Comment:** What method was used to arrive at the stocking rate decreases proposed in the EIS?

Response: Current monitoring data on file and professional judgements were used to estimate possible stocking rate reductions. If stocking rate decreases are necessary, they will be accomplished only after consultation, cooperation and coordination with affected and interested parties, in accordance with the regulations.

5. **Comment:** Severe trampling for an extended period of time is detrimental, but the hoof action of ungulates is a tool used by nature to work and build the soil and to change land forms such as sloping sheared banks. Hoof action and trampling is natural and healthy but the time factor has to be controlled.

Response: Guidelines represent a mix of livestock grazing management tools designed to achieve healthy public rangelands as defined by the standard.

Streambank alteration or trampling by livestock increases erosion and impairs streambank, channel and riparian function. It is widely recognized that streambank alteration by livestock must be limited to levels that will still allow standards to be achieved. Streambank impacts are a significant component of the recently approved State of Montana Grazing Best Management Practices (BMPs) that was a coordinated effort by the livestock industry, public land managers and the state of Montana. Some relevant portions of those BMPs are as follows: "Promote deep-rooted streambank stabilizing vegetation in order to maintain overhanging banks. A grazing system designed to maintain or restore riparian conditions will: 1) specify grazing periods and outline specific recovery periods following grazing that are needed to maintain desired streambank integrity; 4) leave sufficient plant residue necessary to protect streambanks and filter sediments; 6) manage streambank shearing and trampling to meet objectives within the grazing strategy."

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Response: The BLM is committed to livestock grazing as an accepted use of the public land. Land patterns are a good example of why consultation, cooperation and coordination is needed in the management of healthy rangelands.

7. **Comment:** Placement of salt is a very site specific decision based on attempting to disperse the grazing ungulate and possibly manipulating the resources with hoof action to address a problem. Categorical prescriptions should not be made.

Response: The specifics of salt placement will be addressed in the terms and conditions. The Butte Guideline #7 offers general guidance for the placement of salt/minerals.

8. **Comment:** Developing water off the wetland areas would help sustain rangeland health. Development of wells,

pipelines and water tanks will insure adequate water supplies away from the riparian areas, benefitting cattle and wildlife.

Response: We agree that developing water away from riparian/wetland areas would help maintain or improve riparian/wetland condition. These types of range improvements will be considered on a site-specific basis.

9. **Comment:** There is some confusion regarding the number of allotments which presently do not appear to meet the proposed standards. In several places (p.64) the EIS states that "most of the approximately 400 allotments which presently appear to be not meeting the proposed biological standard". In most places (and in Appendix E) it discusses 900 allotments (400 in uplands, and 500 in riparian areas), this should be consistent.

Response: In several places throughout the DEIS, including Appendix E, reference is made to about 900 allotments which appear to not be meeting one or more of the standards. It is further broken down to identify which of those allotments appear to not be meeting each of the standards. For example, about 400 allotments appear to not be meeting the Upland Standard, and about 500 allotments appear to not be meeting the Riparian Standard. (Note: these figures have been adjusted slightly in the supplement to the DEIS).

10. **Comment:** The discussion of an expected decrease of 27,000 AUMs of livestock grazing under the proposed action (p.71 and 74) is not consistent with the discussion in the summary of the EIS. According to the summary, a net reduction of about 8000 livestock AUMs out of a total of about 1.4 million AUMs within the study area is projected as a direct result of S&G implementation. The numbers should be consistent.

Response: Under current management (No Action Alternative), there is a reduction of 19,000 AUMs which would occur over the long term. Under the proposed action, there is an estimated reduction of 27,000 AUMs, which would occur. This includes the 19,000 AUM reduction planned under current land use plans, plus an estimated reduction of 8,000 AUMs as a direct result of implementing the standards and guidelines. (Note: these figures have been adjusted slightly in the Supplement to the DEIS.)

11. **Comment:** The DEIS has not clearly shown that it is in the public interest to continue livestock grazing on public lands. Public benefits versus cost should be revealed for all alternatives. Clarify how a federal grazing permit is granted and the process used and if access to public grazing resources is equal for everyone.

Response: Livestock grazing is one of the multiple uses of public rangelands authorized by FLPMA. Areas where grazing is not compatible with healthy rangelands would be determined as standards are applied. Livestock grazing privileges, qualified users, equal access, renewals, and appeals are issues relating to the grazing regulations and are not relevant to this EIS. The validity of funding associated with livestock grazing is not relevant to this EIS.

12. **Comment:** It is inappropriate to manage the rangeland/riparian ecosystem based on the allotment management framework because the boundaries are "political".

Response: The standards and guidelines are intended to establish a direction toward restoring rangeland health in areas where healthy rangelands have not been achieved. Because "political boundaries" do exist, consultation, cooperation and coordination are very important for ecosystem management.

13. **Comment:** Were variations in precipitation and periodic drought on different allotments taken into consideration?

Response: Allotments have not been visited to determine if Standards for Rangeland Health are being met. The validity of the preliminary rating of 920 allotments will need to be verified, in some cases, by on-the-ground analysis prior to determination of whether standards are being met. Variations in precipitation and periodic drought, as well as times of above normal precipitation will be taken into consideration when making determination of whether standards are being met and if livestock are a significant factor in not meeting standards.

14. **Comment:** Proper grazing pressure is essential for a healthy ecology. Preservation is not a good management tool, it promotes decadence and monocultures, not biodiversity.

Response: We agree that "proper" grazing pressure can be consistent with healthy functioning rangeland ecosystems. Livestock grazing will be authorized as long as it is done in a manner that does not prohibit achieving the Standards for Rangeland Health. Grazing of plants is also done by wildlife, including rodents and big game.

15. **Comment:** Comments on Appendix J, examples. Example #2: Do these "foreseeable changes" mean a decrease in AUMs? Example #3: Why are these changes expected to take so long to implement? Example #4: Why isn't short or long term rest considered an option in this case?

Response: Example #2: "foreseeable changes" in this example could mean that once S&Gs are approved, the authorized officer is required to take appropriate action before the start of the next grazing season.

Example #3: Most of the changes necessary to improve the allotment in this particular example are long term and expensive, and current management appears to be "barely holding on". Any meaningful changes would require full cooperation of the operator.

Example #4: Short or long term rest is an option directly related to reducing AUMs. Some combination of other management options is also possible.

16. **Comment:** The DEIS fails to identify the impaired allotments or stream segments/wetlands specifically. The EIS must reveal the specific allotments where grazing may not be appropriate or is damaging important resources (i.e., identify priority allotments, impaired or at-risk allotments, etc.). Provide maps outlining the various allotment locations and conditions. Identify how allotments were visited and inspected to collect the information.

Response: Site specific information will be collected, if needed, and analyzed at the resource area level. The information used to analyze the impacts of this EIS was a broad-scale estimate, which will be further refined on a site-by-site basis at the resource area level when implementation occurs. Evaluations will be made using previously collected monitoring and inventory data, new technology, approved procedures or professional judgement. Users and interested parties are encouraged to take part in these assessments. Additionally, due to the broad study area this EIS covers, it would be difficult, if not impossible, to develop a detailed impacts map which would address the allotment locations and conditions. A map of this detail would be difficult to interpret.

17. **Comment:** Your analysis area is so large that when you show estimated management changes, table 4-1 and table 4-4, it is hard to determine if these changes are spread equally across the planning unit or are going to affect one area significantly more than others. Show these tables by the number of allotments for each district.

Response: The estimates of the data was based on a preliminary rating. On the ground validity will be conducted prior to determining whether the standards are being met or not. The document indicates that impacts would likely be concentrated in western and central Montana. Because the data is estimated, it is not appropriate to provide the information on an allotment by allotment basis.

18. **Comment:** What specific data was considered in making the predictions as to how the S&Gs would effect current allotments with regards to changes in management practices, or reductions in AUMs, and was there a minimum level of analysis conducted on each allotment in the state? Were certain allotments withdrawn from consideration because of a lack of data? Were averages or hypothetical conclusions drawn based on a representative sample of the total allotments considered?

Response: The information used for the purpose of analyzing the impacts of implementing the proposed S&Gs was collected as an estimate. Each "I" (Improvement) and "M" (Maintenance) allotment was reviewed using available monitoring and inventory data and professional judgement to make an estimate as to whether or not it was meeting, making significant progress towards, or not meeting each standard. This information was used as a basis to estimate, on a resource area wide basis, the changes that may need to be made in management practices. The information was consolidated and rounded for the EIS study area for the purpose of the EIS analysis. It is estimated data, which will need verification through field assessment prior to using the information for more specific purposes. Permittees and other interested parties will have the opportunity to become involved in the process of determining whether or not their allotments are meeting standards and in determining what management practices may need adjusting.

19. **Comment**: Why doesn't the draft EIS show individual grazing allotment specifics? Isn't this the data upon which the total effects are tabulated?

Response: The regional impact projections are based on a cursory review of most allotments in Montana and the Dakotas. The allotment specific information is not shown because BLM is not proposing allotment specific decisions. These will be made on a case by case basis and are projected to be implemented over a 20 to 25 year interval.

The allotment specific data used for this analysis will need to be validated prior to implementing allotment specific decisions. However, it is considered reliable for use in aggregating and developing regional impact estimates.

20. **Comment**: Can we use a range of figures for livestock reductions rather than an absolute number?

Response: The figures provided are estimates. They imply a "range" (+/-), and are not absolute numbers.

21. **Comment**: Were the reductions projected with the assumption that grazing systems or the latest grazing techniques would be utilized?

Response: Reductions are usually a last resort. If it is feasible and not cost prohibitive to implement grazing systems, build range improvements or any other management techniques which would help the allotment meet standards, those actions would occur prior to reductions. The estimated reductions needed would be in addition to implementing any practical management techniques.

22. **Comment:** Produce a product that is a marketable gain to local communities.

Response: Gains to local communities are not the intent of the proposed action. The DEIS (p.12) states that standards apply to rangeland health and not to the important bi-products of healthy rangelands such as more fish, higher livestock weaning weights, regional social and cultural values, increased timber production, etc. By maintaining rangelands in healthy functioning condition, marketable products may be produced from public lands.

23. **Comment:** DEIS makes no mention of how the BLM proposes to pay for range improvements. Include a detailed discussion of any and all planned mitigation projects, with reference to how these projects will be funded.

Response: Funding priorities will be determined as work priorities are established. Priorities will be established within each Resource Area. Priorities for range improvement funding will be spent on those high priority areas benefitting rangeland health.

24. **Comment:** A veterinarian or qualified pathologist should discuss disease transmission risks from domestic livestock to wildlife, specifically cattle to bighorn sheep.

Response: Transmission risk of diseases is beyond the scope of the EIS.

25. **Comment**: Confusion with the increase of allotments with the addition of western Montana (the supplement to the Draft EIS). Clarify if there is an increase of 80 or 120 allotments.

Response: There were 80 additional allotments added to the analysis through the supplement to the draft EIS. The figures for allotment categorization were revised due to errors in the DEIS. Notice that the number of uncategorized allotments decreased from 250 to 210 allotments.

26. **Comment**: It is not clear if all 20 allotments in western Montana which are not meeting the standards require a change. Clarify this.

Response: If allotments are not meeting standards, BLM is required to take appropriate action to ensure that significant progress is being made toward meeting the standards. Some type of grazing management change would occur on allotments not meeting standards. Table 4-4 in the supplement shows the estimated changes which would occur.

27. **Comment**: Are the proposed reductions in livestock exclusions in western Montana consistent with the goal of riparian restoration? The FEIS should include additional discussion or clarification regarding the reduction in these livestock exclusions with the proposed action.

Response: The allotments estimated to need total exclusion from grazing changed from two to zero to update the change that was documented on the errata page to the draft EIS. There were no estimated exclusions needed in the allotments west of the Continental Divide.

Associated Resources

1. **Comment:** The discussion on the end of the bison hunting era (p.45) should mention the wars between the whites and Indians and the slaughter of the bison by the European immigrants.

Response: The FEIS was modified. Refer to the text changes on page 45 of the DEIS, column 1, second paragraph.

2. **Comment:** How many livestock-related developments are actually on the Historic Register? Is it possible to restore some of the landscape to reflect the historic era prior to the influx of ranching?

Response: As stated on p.64 of the DEIS, even without the proposed alternative, changes to the historic landscape would occur. Page 44 of the DEIS reviews the percentage of BLM land in the study area that has been inventoried, as well as estimates of inventories. Restoration activities is beyond the scope of this document.

3. **Comment:** An analysis must also be done which addresses the effects of soil erosion, ground compaction, and trampling on any and all cultural/historic sites and any and all archeological sites or artifacts found within the analysis area. Include methodology, a copy of any MOA with the State Historic Preservation Office and the qualifications of the people who will be doing the survey work.

Response: Refer to the Impacts Common section on p. 64 of the DEIS. This section states that most direct impacts to historic properties are avoided through project redesign. All procedures for survey work, methodology, are done in compliance with the regulations found in Section 106.

4. **Comment:** How is grazing to be managed differently in the Lee Metcalf- Beartrap Canyon Wilderness Area to maintain wilderness values?

Response: The Lee Metcalf-Beartrap Canyon Wilderness is managed under the Wilderness Act of 1964. Under the guidelines of the Wilderness Act, all grazing permits and leases that were issued prior to the wilderness designation will be honored. Any maintenance or operation of facilities must ensure protection of wilderness resource values. All activities, including grazing, must comply with the Wilderness Act.

5. **Comment:** How many acres does BLM have in Wilderness Study Areas statewide?

Response: There are 447,327 acres in BLM Wilderness Study Areas (WSAs) statewide; 173,499 acres of which have been recommended for wilderness designation.

6. **Comment:** Include detailed consideration of the impacts to inventoried roadless land within the project and analysis areas. Roadless areas serve as protective reserves that sustain many of values, and should be deleted from consideration in grazing allotment proposals. Include a detailed map of all inventories and uninventoried roadless areas, Wilderness Areas, Wilderness Study Areas, and areas proposed for Wilderness designation which are currently being managed for, or have the potential for, livestock grazing. For those with allotments in these areas, they should also not be authorized to operate motorized vehicles in these areas. Define what constitutes a road. Provide estimates for the number of miles of these road types currently in all Wilderness Areas, Wilderness Study Areas, areas proposed for Wilderness designation and all inventoried and uninventoried roadless areas.

Response: The BLM Montana Statewide Wilderness Study Report (vol. 1 and vol.2) contain much of the requested information. This report is available at your local BLM office. The law provides for, and the BLM's policy is to allow continuation of grazing on lands under wilderness review in the manner and degree in which these uses were being conducted on October 21, 1976. The BLM's "Interim Management Policy for Lands Under Wilderness Review" (IMP) allows for mechanical transport on existing ways and within open areas that were designated prior to the passage of FLPMA (October 21, 1975). The BLM definition of a road is explained in the glossary of the IMP under the roadless definition. "Roadless: for the purpose of the wilderness review program, this refers to the absence of roads which have been improved and maintained by mechanical means to ensure relatively regular and continued use. A way maintained solely by the passage of vehicles does not constitute a road".

7. **Comment:** DEIS p.42 states that recreation visitors exceeded two million in 1995. How many visitors were there in previous years?

Response: Visitor use since 1991 has increased slightly from approximately 2.1 million to 2.3 million visitors on public lands in the Montana/Dakotas.

8. **Comment:** Ecological processes include nutrient cycling, energy flow, etc. A natural occurring event, such as wildfire, generally is not considered an ecological process (DEIS p. 63).

Response: The Federal Wildland Fire Policy and Program Review states that wildland fire, as a critical natural process, must be reintroduced into the ecosystem. Wildland fires, both natural and those set by historic man are a recorded part of our history and environment. Prescribed fire is a management tool used to achieve desired plant communities or resource conditions and occurs in specific locations and conditions. Prescribed fire will be used after the required preliminary work, public involvement, NEPA compliance and conformance with land use plans.

9. **Comment:** The EIS does not inform the decision maker as to the importance of establishing watershed level controls. Control at the watershed level should be defined in the glossary.

Response: It is assumed the recommendation of watershed based controls refers to relic or reference areas. Relic or reference areas are considered in the assessment of whether or not an area is meeting Rangeland Health Standards. The techniques which will be utilized to assess achieving standards were not placed in the DEIS due to their length. Technical references on monitoring riparian areas will be referenced in the EIS. The draft qualitative Rangeland Health assessment will also be referenced.

10. **Comment:** DEIS makes no mention of the direct, indirect and cumulative impacts of all road construction, reconstruction and modifications of access management related to this proposal. The FEIS must include provisions

mandating that all road construction proposals must be accompanied by a complete analysis specifying the number of miles, location, cost, and quality of road construction.

Response: The DEIS makes no mention of the direct, indirect, and cumulative impacts of all contemplated road construction, reconstruction or modification of existing roads because there are none anticipated. The grazing allotments addressed in this DEIS have been in existence for decades and in most instances are served by long established access routes which are adequate for the purposes they serve. The suggestion that a programmatic review of a process where all system and non-system roads which are non-essential are obliterated, is beyond the scope or intent of this EIS. In most instances, BLM grazing allotments are accessed by two track, long established road systems in a relatively stable environmental setting. In the rare instances where new road construction or modifications are considered in the future, site specific environmental assessments would be prepared in compliance with NEPA.

Monitoring and Implementation

1. **Comment:** Implementation should be done at the local level and involve the rancher and the BLM. If a problem arises, then the Grazing District should become involved. The landowner/permittee should also be involved when evaluating the permit or allotment.

Response: We agree that problems and solutions should be resolved at the lowest level possible with all interested public involved. The regulations require consultation, cooperation and coordination with affected permittees or lessees. RACs are encouraged to become involved in many issues.

2. **Comment:** All decisions should be consistent with the Taylor Grazing Act.

Response: A goal of Standards for Rangeland Health is to provide healthy rangelands, which in turn will benefit all uses. The regulations are designed to keep all users involved through consultation, cooperation and coordination. Excerpts from the Assistant Secretary of Interior for Lands and Minerals, Bob Armstrong remarks to the National Cattlemen's Association in January of 1996 are relevant to this comment. "First, I want to underline the Department of the Interior's commitment to grazing. Grazing is part of our heritage and helps preserve the wide open spaces of the West. This is a commitment that began with the Taylor Grazing Act, which reversed the decline in the health of the range, and continues today with our initiative, (Rangeland Health) which will bring 20 million acres of uplands into proper functioning condition. We are committed to maintaining healthy and productive public rangelands that support stable western communities. I don't need to tell anyone here that grazing isn't the only activity that takes place on the public lands, and I suspect that many of you wish it weren't the case. But I'd like to ask you to take a minute to think about why the Federal Land Policy Management Act — the mandate that ensures that public lands are managed for multiple use—is important for ranchers. FLPMA guarantees grazing as an activity on the public lands. It ensures that you have your place at the table as we look ahead to how we manage our lands."

3. **Comment:** S&Gs are typically not enforced. Area Managers, District Managers, and permittees are not held accountable. There is no incentive to comply with the S&Gs. Managers are not held responsible for not enforcing compliance. There is no funding or personnel to implement. Also concerned about the lengthy implementation schedule.

Response: Regulations provide that appropriate action be taken as soon as practicable, but not later than the start of the next grazing year, upon determining that existing grazing management is not meeting the standard. Action is also required if grazing management or levels of grazing use is failing to achieve the standard or conform with the guidelines. The regulations also state that the authorized officer shall take appropriate action upon determining that existing grazing management needs to be modified to assure that standards are achieved. BLM recognizes that it is not possible to complete all assessments of rangeland health and to take corrective action immediately, however, assessments and corrective actions will be undertaken in priority order as determined by BLM.

4. **Comment:** DEIS, p.65, states that the no action alternative will be implemented in 20-25 years, compared to 25-30 years for the preferred alternative (p.71). However, on p.74, the DEIS states that "this assumes a slightly faster implementation than under current management". These statements seem to be contradictory and need to be reconciled.

Response: The DEIS incorrectly presents the implementation information. The rate of implementation for the No Action alternative will be about 25-30 years; and the rate of implementation for the Proposed Action will be about 20-25 years, which assumes a slightly faster rate of implementation than under the current management. These changes will be made in the EIS, on pp. 23, 65, 71 and 74.

5. **Comment:** There is a lack of enforceable standards to protect native communities and species.

Response: Standard #5, as applied across the three state area, means that native plant and animal populations and communities will be maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native species.

6. **Comment:** Maintain maximum flexibility in implementation process.

Response: Flexibility is the key to any successful program. Standards are designed to maintain healthy public lands while allowing for the development of local goals and objectives. Guidelines are designed to provide direction, yet offer flexibility for local implementation through grazing permit terms and conditions.

7. **Comment:** Establish control areas where there are large areas of public land within an allotment excluded from livestock grazing, for comparison purposes. These control areas would provide scientific information on effectiveness of guidelines in achieving their goals.

Response: There are a number of areas of public land that are excluded from livestock grazing, either naturally or mechanically, for the purpose of scientific observation and study. Natural areas, enclosures and test sites all contribute to the scientific history of an area.

8. **Comment:** In absence of an active quantifiable monitoring program, livestock use of allotments that were last graded as needing improvement, and where current livestock grazing is indicated as a factor in this condition, should be reduced, until it is documented that the rangeland condition has improved.

Response: BLM has not yet made on-the-ground verification of whether an allotment is meeting standards for rangeland health. This will begin once the S&Gs are final. Grazing will be permitted as long as it is consistent with achieving rangeland health standards. Much of the evaluation of whether an area is meeting standards will be done with qualitative methods.

9. **Comment:** Even though effectiveness monitoring is difficult and expensive, if S&Gs are not effective we will not attain our goals. BLM must dedicate enough funds and prioritize effectiveness monitoring. Agency personnel and the user should be cooperatively involved in monitoring.

Response: BLM standards are statements of the levels of physical and biological condition or function required for healthy, sustainable rangelands. Guidelines are management practices or methods which will help ensure that standards can be met or significant progress can be made toward meeting standards. BLM has methodologies by which to assess whether the Standards are being met. If required, terms and conditions will be established to specify use levels necessary to achieve the standards. It will be necessary to conduct implementation monitoring of terms and conditions. Without implementation, effectiveness monitoring will be useless.

There have been funds granted to conduct validation monitoring and we are working with the University of Montana to conduct this effort. As effectiveness monitoring is conducted, the livestock operators will be given the opportunity to be involved.

10. **Comment:** The DEIS does not disclose how monitoring will be funded to adequately identify the positive ecological trends that the document promises. Monitoring in general is not adequately addressed (i.e., unknown acres of vegetation trends, no simple and measurable compliance standards, etc.). Specific goals and criteria need to be developed to see if the improvements occur as expected. Information on how monitoring will be done (manuals, reference documents, etc.) should be referenced in the Appendix.

Response: Adequate funding and staffing to closely monitor all lands BLM administers will always be an issue the BLM must address. New paradigms in monitoring are beginning to evolve. Permittee and other interested parties may become involved in implementation monitoring. Implementation and effectiveness monitoring similar to the forestry BMP audit program could be established for monitoring grazing guidelines/BMPs. Currently grant funding is being utilized to conduct validation monitoring of what livestock use levels allow achieving the standards. Representative monitoring sites can be utilized to extrapolate to other areas. BLM will utilize both quantitative and qualitative techniques and indicators to determine if Standards for Rangeland Health are being achieved and/or whether significant progress is being made towards the meeting the standards. Technical references on monitoring riparian areas will be referenced in the EIS. The draft qualitative Rangeland Health assessment will also be referenced.

11. **Comment:** The DEIS (p.42) recognizes that 400 allotments do not meet ecological standards. Have these

400 allotments actually been recently monitored and found lacking? If so, what percentage of all allotments were monitored, and how many more may not be meeting the proposed standards?

Response: The DEIS states that there "appears to be 400 allotments...". The initial assessment was made based on a review of available information or professional knowledge. In many cases, final assessment of Standards will need to be conducted on-the-ground by area specialists and others. Collection of data will be the responsibility of the BLM, however, it is hoped that anyone with an interest in rangeland health would consider being involved.

12. **Comment:** The DEIS states that S&Gs will be monitored (p.64). It would be more logical to monitor resource conditions to evaluate the effectiveness of management actions.

Response: Monitoring will be conducted on resource conditions to check conformance with S&Gs. The standards for rangeland health are expressions of levels of physical and biological condition or degree of function. Therefore, the BLM is monitoring resource conditions to evaluate the effectiveness of management actions.

13. **Comment:** The DEIS predicts faster changes in resource conditions under the proposed action. We suggest that some Montana case studies (based on intensive monitoring) that compare the rate of change under current management and under the proposed management be summarized in the EIS.

Response: Changes in livestock management that are aimed at improving resource conditions on the ground can result in improved upland and riparian functioning conditions, water quality and wildlife habitat. These actions, where they result in decreased livestock use, have not been historically implemented. Current management direction and the implementation of that direction on the ground therefore may be different. Actions such as deferment of grazing of key plant species or alternating growth season use to allow for regeneration of woody species, adjusting the season or duration of livestock use, modifying the frequency of grazing periods, establishing target utilization levels for herbaceous and woody vegetation and allowable streambank alteration, reducing livestock stocking rates, and modifying or relocating range improvements have all proven effective in enhancing resource conditions. Local BLM offices would be able to provide some specific examples on the ground where livestock management changes have resulted in improved resource conditions.

14. **Comment:** Use consistent monitoring procedures.

Response: BLM will continue using monitoring methods and techniques that are approved and accepted.

15. **Comment:** The EIS should disclose the total funding and personnel needed to properly monitor all allotments, and compare this to the current and projected resources for each district.

Response: Workload priorities and funding levels will determine BLM's priority for work. Mandatory allotment monitoring is not necessary. Rangeland managers are charged with the responsibility to take action when allotments are not meeting standards.

16. **Comment:** Include short term and long term monitoring and describe in a quantitative method how they will be done. Coordinate with the FS.

Response: Monitoring and assessments will be used to determine (1) if standards are being met and (2) if existing management practices or levels of grazing use are significant factors in failing to achieve the standards and conform with the guidelines. The Forest Service has recently adopted BLM Proper Functioning Condition assessment procedures for riparian areas. The BLM will continue to use monitoring methods and techniques that are approved and accepted.

17. **Comment:** Concern that different sets of assessment procedures are being used by different groups for assessing effects of livestock grazing and other land management activities on streams and riparian/wetland areas. Evaluate different assessment procedures and either develop one integrated assessment procedure for use on all land ownerships or develop understanding and guidance for when and where different assessment procedures should be used.

Response: The BLM, USFS, USFWS, BIA, BOR, and NRCS are all currently utilizing the same methodology for determining functioning condition of riparian areas. BLM does not feel that it is our role to tell state or private organizations how to assess the effects of livestock grazing and other land management activities on streams and riparian/wetland areas on land that is not under BLM's jurisdiction. BLM in Montana has been instrumental in developing this riparian functioning condition and the classification methodology with the Montana Riparian and Wetland Association. We have and will continue to work closely with the other member organizations of the MRWA. If the State would like to evaluate different assessment procedures, we would be willing to cooperate, however the federal agencies have an effective and quantifiable

methodology to determine the functioning condition of riparian areas. BLM has spent a great deal of time and effort training staff and the USFS is currently initiating staff training of riparian functioning condition.

18. **Comment:** The EIS should place more emphasis on trend studies, where observations are repeated systematically for several years. Likewise, less emphasis should be placed on the functional status of uplands and riparian areas.

Response: Rangelands will be evaluated against the concept of properly functioning condition. Rangeland monitoring, including trend studies, would continue and new data would be analyzed to assess the effectiveness of actions implemented under standards and guidelines.

19. **Comment:** Implementation Assumptions: The discussion is vague and it is not clear when and if implementation of the S&Gs will occur.

Response: Standards for rangeland health and guidelines for grazing management will take effect on or before August 12, 1997.

BLM places a very high priority on the implementation of Standards for rangeland health and guidelines for grazing management. Addressing priorities to meet water quality goals and the list of impaired waters are discussed with the state. Please read the BLM's 305(b) report to the State of Montana provided to both EPA's regional and Montana operations office.

Process Comments

1. **Comment:** Have you taken into account the real damage other users do to the resource before making your decisions?

Response: The Standards were developed to address Rangeland Health, and do not address specific uses. The guidelines were developed to specifically address livestock grazing. The development of standards and guidelines are required in the BLM grazing regulations. When the authorized officer (AO) is implementing the standards and guidelines, there is a situation where the standards are not being met due to current livestock grazing practices, the grazing regulations require the AO to take action. If the standard is not being met due to another resource use, then the AO should take appropriate action based on regulation or policy which applies to the other use causing the situation. Developing guidelines for other uses is beyond the scope of the grazing regulations, and beyond the scope of this EIS. Allotments will be prioritized at the Resource Area level in order to implement the standards and guidelines on a priority basis.

Site specific information will be collected, if needed, and analyzed at the resource area level. The information used to analyze the impacts of this EIS was a broad-scale estimate, which will be further refined on a site-by-site basis at the resource area level when implementation occurs.

2. **Comment:** Cumulative impacts were not discussed in the DEIS.

Response: A discussion on cumulative impacts has been incorporated in Chapter 4 of the FEIS.

3. **Comment:** Why are the national Fallback S&Gs included in the analysis if the plan is not to implement them?

Response: The Fallback Standards and Guidelines were established by regulation and are contained in regulation 4180.2(f)(1). In the event that State or regional standards and guidelines are not completed and in effect by August 12, 1997, and until such time as State or regional standards and guidelines are developed and in effect, the fallback standards and guidelines shall apply and be implemented. They were included in the document to analyze the effects of possible implementation on August 12, 1997.

4. **Comment:** Purpose and Need for proposal is unclear. Why is this project needed?

Response: The MT/DAKs proposes to establish regional standards for rangeland health and guidelines for livestock grazing management, in accordance with regulations governing BLM administration of livestock grazing on public lands (43 CFR 4180). The DEIS (pp.1-4) describes the purpose of the standards and guidelines in greater detail.

5. **Comment:** The FEIS should include detailed maps that disclose effects for resource issues.

Response: Due to the broad study area this EIS covers, it would be difficult, if not impossible, to develop a detailed impacts map which would address the listed concerns. A map of this detail would be difficult to interpret.

6. **Comment:** Consistency among the FS and BLM should be considered.

Response: Although the Forest Service and BLM have different definitions for the word "standard", the processes that both agencies are proceeding with do not appear to be in conflict. The BLM has worked closely with the Forest Service in the process to meet the requirements of the Beaverhead Lawsuit.

7. **Comment:** Definitions of Standards, Objectives and Guidelines are not consistent within the document and the glossary.

Response: The definitions for standards, objectives and guidelines were changed in the glossary for the final EIS. Refer to the text revisions section in this chapter.

8. **Comment:** It is not clear why the fallback S&Gs fail to recognize and address the items listed as fundamentals of rangeland health identified in the regulations. It is also stated on p.1 that a standard on water quality is a minimum requirement, yet it is not listed under the fallback standards, and the guidelines must include a statement such as "maintaining, restoring or enhancing water quality to meet water quality objectives".

Response: The Fallback Standards and Guidelines were established by regulation and are contained in regulation 4180.2(f)(1). In the event that State or regional standards and guidelines are not completed and in effect by August 12, 1997, and until such time as State or regional standards and guidelines are developed and in effect, the fallback standards and guidelines shall apply and be implemented. Guidelines that address water quality have been added by all Resource Advisory Councils.

9. **Comment:** The information in Appendix E is not clear and not specific enough to estimate the impact (water quality).

Response: In numerous places in the DEIS (pages 6, 7, 33, 36, etc;) BLM refers to its water quality obligations. On page 36, the DEIS refers to Appendix E where all three State 305(b) reports were used as a source of information to estimate affects of preliminary implementation of the proposed standards. This was an estimate based on available information and the 305(b) information from the states. Once the Standards are final we will visit locations on the ground and make an assessment of whether the standards are being achieved.

Refer to BLM's 305(b) report, which was supplied to both Region VIII and the Montana operations office. This report describes our MOU with the State of Montana and our designated management agency status responsibilities. This also explains how BLM discusses water quality standard compliance with the State. BLM has chosen not to discuss in this document draft narrative biological standards that have been under development for over ten years.

10. **Comment:** If impacts are assumed to be similar or identical, what was the purpose of putting people (RACs) to work to review the range reform regulations and adopt the S&Gs?

Response: The analysis of impacts associated with the proposed action was not completed or initiated prior to the RACs completing their standards and guidelines. Compliance with minimum requirements of regulations limited options of variability.

The purpose of the RACs conducting this effort was to have them closely involved in the development of Standards for Rangeland Health and Guidelines for Grazing Management in consultation with the BLM.

The lack of significant difference between the fall back standards and guidelines, the proposed action, and current management direction demonstrates that this action is not substantially different than how BLM is currently managing public rangelands.

11. **Comment:** Are the fallback S&Gs the starting point for the work of the RACs? Were the RACs steered into this assumption at their first meeting by the draft copy of S&Gs that the Montana state BLM staff distributed?

Response: BLM grazing regulations (4180.2) require that (b) "The Bureau of Land Management State Director, in consultation with affected Bureau of Land Management resource advisory councils, shall develop and amend State or regional standards and guidelines." Standards and guidelines developed by the Bureau of Land Management State Director must provide for conformance with the fundamentals of Sec 4180.1. There is also a minimum list of five items that the standards must address and a minimum of twelve items guidelines must address. It is the condition to address these minimum requirements not the fallback standards that set the levels for the standards and guidelines.

The RACs were not told that the fallback Standards and Guidelines were the minimum starting point from which to develop State or regional standards and guidelines. This is evidenced by the distinct difference between the fallback standards and guidelines and those provided as a starting point from which the RACs began their efforts. BLM received complimentary com-

ments from all the RACs for doing staff work necessary to give them a beginning from which to proceed to develop state or regional standards and guidelines. The guidelines were developed from the State effort to establish livestock grazing best management practices.

12. **Comment:** Compare the current and proposed changes with a no action alternative that has no livestock grazing on BLM lands.

Response: A no livestock grazing alternative was considered in the DEIS, but omitted from detailed study; refer to p.26 of the DEIS for rationale as to why it was eliminated.

13. **Comment:** The DEIS failed to develop significantly different action alternatives.

Response: Reasonable alternatives to the proposed action, including a no action alternative (continuation of current management), must be defined and should represent an alternative means of satisfying the identified purpose and need and of resolving issues. The DEIS considered three alternatives in the analysis: continuation of current management (no action); the proposed action (proposed S&Gs); and the fallback S&Gs. In addition, a no grazing alternative was considered, but dismissed from detailed study in this EIS because it has been analyzed in the national Standards and Guidelines Final EIS, and many other grazing EISs. Other alternatives were considered, but eliminated from detailed study, refer to p.26 of the DEIS.

14. **Comment:** Close the grazing season during the "hot season" (August and September) for watersheds/allotments with important riparian resources.

Response: Livestock grazing on public land is a recognized use and has been analyzed through many documents. Various management options (refer to the guidelines) were considered in the document. Specific treatments (i.e., eliminating hot season grazing) are available and should be considered under terms and conditions as a solution to a specific problem.

15. **Comment:** Analyze an alternative that protects riparian areas through the exclusion of grazing along waterways, natural ponds and lakes, and in riparian areas and wetlands.

Response: Options to protect riparian areas is discussed throughout the document and in the guidelines. Specific measures to protect resources should be considered as management options to solve specific problems. Changes in grazing management could include changes in grazing systems, season-of-use, class of livestock or excluding livestock grazing.

16. **Comment**: What is the background on the effects analysis?

Response: After receiving the recommended S&Gs from the RACs, each Resource Area determined to the best of their knowledge, using available data and professional judgement, whether or not allotments appear to be meeting, making significant progress towards or not meeting each standard. In addition, each Resource Area projected management changes which might occur in order to fully implement RMP/MFP decisions and to fully achieve proposed S&Gs. We compiled this information for the state and used it to analyze impacts in the EIS.

17. **Comment**: Because the EIS stresses importance of wildlife species and the recovery of threatened and endangered species habitat, you must consider the reintroduction of wild bison to achieve the aims of standards and guidelines.

Response: This alternative was added to "Alternatives Considered but Eliminated from Further Detailed Study", in Chapter 2, p. 26. Refer to the Text changes section of this Final EIS (Chapter 5).

18. **Comment**: The supplement indicates that the ICBEMP EIS will supersede the EIS developed in Montana for Standards and Guidelines. What effect will this have on allotments in the Upper Columbia River watershed?

Response: As changes are implemented on allotments/landscape areas to implement standards and guidelines in the Upper Columbia river watershed, considerations should be given to planning occurring under the ICBEMP EIS. Any changes made to management of an allotments/landscape area should attempt to be in conformance with the direction being proposed in the ICBEMP EIS. The Record of Decision for the ICBEMP EIS will supersede the Record of Decision for the Standards and Guidelines EIS.

19. **Comment**: The environmental benefits of extending the proposed Standards and guidelines to western Montana in the supplement are unclear. It does not appear that there would be much difference between having the S&Gs versus the Fallback S&Gs in effect for the short duration of time before being superseded by the ICBEMP. The rationale needs to be clarified in the Final EIS.

Response: The grazing regulations at 4180.2(b) state that "The Bureau of Land Management State Director,

in consultation with affected Bureau of Land Management resource advisory councils, shall develop and amend State or regional standards and guidelines". The Butte RAC wanted the opportunity to apply the standards and guidelines they developed to the area West of the Continental Divide rather than just apply the Fallback Standards and Guidelines.

Threatened and Endangered Plants and Animals

1. **Comment:** Decreases in cutthroat trout are not necessarily a result of overgrazing; whirling disease, heavy pressure from fishermen and competition from other fish are factors.

Response: We agree, however this EIS only treats grazing and did not analyze affects of other uses on the cutthroat trout.

2. **Comment:** A population of Ute ladies' tresses (Spiranthes divluvialis), a threatened plant, was recently discovered on private land in Jefferson County, Montana. This plant was not included in the FWS's list of T&E species provided to BLM on February 29, 1996.

Response: Ute Ladies' tresses have been addressed as a list of threatened species in the FEIS. Refer to text changes in the FEIS.

3. **Comment:** The issue of conflicts with the growing wolf and grizzly populations are not sufficiently resolved (p.41) and should be addressed more fully.

Response: Conflicts between wolf and grizzly populations are beyond the scope of this document. However, the impacts to these species from the proposed action and other alternatives were discussed in the EIS.

4. **Comment:** The DEIS assumes that special status species will not be affected by changes in allotment management (p.64). This may be true when comparing current management with the preferred alternative, but it does not seem to take on the possibility of extensive AUM reductions in some areas.

Response: If extensive AUM reductions occur, further NEPA compliance would be completed on a site-specific basis in these areas. This would further analyze the effects on special status species.

5. **Comment:** The effects on populations of the Threatened Pallid Sturgeon and other fish species of special concern needed to be more specifically discussed.

Response: The EIS addresses these populations, refer to pp. 5, 41 and 67 of the DEIS.

6. **Comment:** We do not believe that small stands of buffalo berry and chokecherry are harmed by proper grazing management (rotational grazing and proper stocking). We disagree with the EIS contention that "they require special management". There should either be data in the EIS to support the contention, or the personal opinion should be eliminated from the document.

Response: We agree that proper grazing is compatible with these habitat types. However, we believe they may require special management in certain circumstances.

7. **Comment:** The DEIS fails to identify significant and unique riparian habitats critical to the Westslope cutthroat trout within the project area.

Response: The Westslope cutthroat habitat has been identified and is in BLM data bases and in the Montana River Information System. It is too voluminous to include in this document. The management guidance for the westslope cutthroat trout (and the Yellowstone cutthroat trout) are included in the document on page 5 of the DEIS.

8. **Comment**: On page 11 of the supplement to the draft EIS, under Species of Special Concern, it is noted that riparian and wetland areas in proper functioning condition (PFC) provide the basic habitat for several species of fish. Define proper functioning condition. Also, these fish are known to live in habitats that are not in proper functioning condition. Some biologists have suggested that habitat is a secondary issue.

Response: The definition of proper functioning condition of riparian and wetland areas is consistent throughout the document and is defined on page 88 of the DEIS. A definition of riparian areas has been added to the final EIS (refer to Glossary section in this final EIS for the definition). While these sensitive fish species can be at times found in riparian habitats that are not functioning properly, this would be an exception. We support our statement that "Riparian and wetland areas in proper functioning condition provide the basic habitat for these fish". Our experience has shown this to be the case. While other factors may impact these sensitive fish species, water quality and proper habitat are essential items to their propagation and survival.

9. **Comment**: Does the Threatened and Endangered Species section of the supplement to the draft EIS adequately

analyze effects of the proposed S&Gs on western Montana's grizzly bear in southwestern Montana?

Response: Grizzly Bears are adequately addressed between the draft EIS and the supplement to the draft EIS. The U.S. Fish and Wildlife Service have concurred with our determination of a positive effect on the grizzly bears with implementation of the preferred alternative.

Economic and Social Impacts

1. **Comment:** We would like the analysis to consider all estimated future costs related to allotments which will be conducted under the proposed S&Gs, including the costs of preparing the analyses, all specialist support and consultation, costs associated with travel management and administration, road construction and engineering expenses, weed control, and planting.

Response: It would not be feasible or practical to identify all future costs with the specificity suggested by the comment. The rate of implementation of improvements in rangeland health condition identified in the DEIS assumes current levels of funding and staffing, or possibly even declines in funding and staffing during the foreseeable future. Currently, about $4 million are expended annually in range management activities, but this figure does not include many other activities related to range management, such as wildlife (including threatened and endangered species), riparian, recreation, fire, soils, and cultural management activities.

2. **Comment:** We request that the Economic Analysis of the FEIS include any and all negative economic impacts of current trends in livestock grazing, especially an analysis of the growing phenomenon of industrial livestock production, in which large corporate "ranchers" control a majority of grazable lands, and how the proposed S&Gs will impact this phenomenon. This FEIS should also address the well-documented economic stagnation which occurs in communities which rely on resource dependent industries such as grazing, and show how the proposed S&Gs will promote or hinder such stagnation.

Response: The long-standing trend in agriculture toward fewer but larger operations was documented in the national Rangeland Reform '94 DEIS, which was incorporated by reference into the Montana/Dakotas Standards and Guidelines DEIS. We do not believe that the proposed action will have any impact on that trend. The problem of "resource-dependent" communities was also discussed in this DEIS (pp. 46-51). It was recognized that the more dependent a community is on a single industry, such as agriculture, for its income and employment, the more vulnerable its overall economy can be to disruptions in that single industry. The proposed action is not expected to affect any ongoing trends with respect to communities' levels of economic diversification, although we do anticipate that improved rangeland conditions over the long term will provide a more sustainable resource base for the livestock industry.

3. **Comment:** The economic analysis fails to evaluate potential impacts to the recreation and tourism industry as a result of implementing the different alternatives. There must be a more detailed comparison of how declining or improving rangeland health could impact hunting, fishing, photography, outfitter and guides, mountain biking, backcountry hiking and other recreational uses of the BLM lands.

Response: The S&G DEIS acknowledges the significant contribution public lands make to a wide variety of recreation and tourism activities. As mentioned in the DEIS, impacts to recreation would generally be positive under all alternatives, although the rate of improvement would be greater under the proposed action (and also under the fallback standards and guidelines). However, the broad, programmatic nature of the alternatives analyzed, coupled with the dispersed character of most types of recreation on public lands, makes it difficult to measure the **magnitude** of the impacts to this wide range of recreation activities and, thus, the economic impacts from changes in recreation.

4. **Comment:** Ranchers are the only ones that manage all the intermingled ownerships that make up viable grazing units. If standards and guidelines result in the movement of livestock off these rangelands or ranchers going out of business, these grazing units will be lost and the isolated deeded and state lands will be rendered useless. Deeded land will be sold off to developers and the open spaces will be lost. The long run impact to the range resource will be disastrous and revenue to the school trust will be diminished. Many more AUM's will be lost than just those off BLM land.

Response: Most allotments would require no changes under the proposed action. Of those allotments requiring changes, the vast majority would not entail AUM reductions. Changes in grazing systems, season of use, class of livestock, vegetative treatments, and other management changes would be prescribed on the vast majority of allotments where changes are needed. As a result, we do not expect or anticipate widespread loss

of grazing land due to ranchers going out of business and/or selling their land to developers.

5. **Comment:** The economic impacts for the proposed action are understated. In Montana the total cut on BLM relates to 2,333 animal units. Based on a 1992 Wyoming study of the economic contribution of federal forage in that state, the economic output lost to Montana by the proposed cuts would equal $2,525,000 and this is equivalent to 37 full time jobs worth $67,107 per job.

Response: This EIS and the Wyoming study used different modelling methods. The Wyoming study estimated the economic impact of an AUM to the state's economy using three measures of economic activity: output, personal income, and employment. The $2,525,000 impact mentioned in this comment refers to a loss of "output" and the $67,107 loss per job also refers to output lost per job. In this EIS, the IMPLAN model was used to estimate impacts using two different measures of economic activity: total income and employment (total income includes employee compensation, proprietary income, and other property income). Impacts to total income and employment were used in order to measure changes from the current level of total income and employment (see DEIS pp. 46-51 and Tables 3-2 and 3-4). The model used in this EIS did not attempt to measure the impact to "output" in the Montana economy because "output" figures on each industry sector in the state were not available. Thus, "total income" is the preferred measure of economic activity by industry sector.

Using different measures (e.g.,. total income versus output) will create different results, but both methods are valid. The important point with respect to impact analysis is that the impact must be measured against a comparable baseline condition. In this EIS, the baseline conditions used were total income and employment. It should be noted that, although the Wyoming study and this EIS used different methods, the employment impacts were similar: 37 jobs versus 32 jobs.

6. **Comment:** Why were cash receipts per cow lower for permittees?

Response: According to survey results (from the 1990 Farm Costs and Returns Survey) permittee operations tended to have fewer pounds of cattle sold per cow (545 pounds for permittees versus 629 pounds for nonpermittees). This would result in lower cash receipts per cow for permittees versus nonpermittees.

7. **Comment:** While permit values are clearly a recognized phenomenon, it is not clear what place they should be allowed in the analysis. Shouldn't the costs of monitoring be given at least equal weight in this analysis?

Response: Monitoring is an important component of the range management program. For the purpose in estimating impacts and the rate of implementation of the proposed action, it was assumed that range management program expenditures in the future would be similar to or slightly less than current expenditures. Given current federal budget realities, this is a reasonable assumption. Therefore, projections of additional management costs, such as for monitoring, were not made.

8. **Comment:** What are the costs of the improvements noted on page 71 of the DEIS? How does 1,500 miles of fence, 1,400 new water developments, 27,000 acres of weed control, and 165,000 other acres of vegetation treatments compare with the costs of not grazing these areas?

Response: Expenditures in the future for implementing the proposed action are assumed to be the same as current expenditures or slightly below. We do not anticipate additional funding. Further, a no-grazing alternative was not analyzed in this EIS. As discussed in the EIS (pp.26), no-grazing has been analyzed previously in the Rangeland Reform '94 EIS, in Montana/Dakota resource management plan EIS's (RMP/EIS) and in grazing EIS's. Implementation of a no-grazing alternative was not considered feasible or necessary except in specific, localized situations to meet resource or management objectives.

9. **Comment:** How can dependence on federal forage range from "an average of 10.9 percent to an average of 85 percent" (p.55)? Should the words average be struck here? Are you talking about two different groups? This statement is confusing.

Response: Information on forage dependency for different permittee groups comes from a study by researchers at the USDA Economic Research Service titled *Economic Aspects of Supply and Demand for Livestock Forage on Public Lands* (which appears as Appendix G in the Rangeland Reform '94 DEIS). In this study, the researchers analyzed the impact of reduced availability of livestock forage on permittees' profitability. This study used data obtained through the national 1990 Farm Costs and Returns Survey representing observations on over 16,000 permittees. For the purpose of the analysis, the permittee observations were divided into quintiles (five groups) based on their dependency on federal forage. For example, one of the quintile groups showed an average dependency of 10.9 percent, another group had an average dependency of 85 percent, and so on.

10. **Comment:** The discussion on ranch income and operations is a biased, oversimplification of a complex subject. Apparently data were used from one source, the 1990 Farm Costs and Returns Survey. It is not realistic to expect that a 210 cow ranch operation 60% dependent on federal forage could receive a 50% cut in AUMs and have its net cash returns decreased by $1,376. Because the conclusions of the Survey are not consistent with most research conducted by agricultural economists at western Universities (Torrell, Godfrey, Workman, Obermiller, Lacey, etc..), we strongly suggest that additional research studies be incorporated into the economic discussion.

Response: In this particular example, there was a herd-size decrease of 65.5 cattle. At $21/cow cash receipts less cash expenses, the decrease in cash receipts less cash expenses is $1,376. This ranch budget model was derived from the 1990 Farm Costs and Returns Survey and presented in the USDA Economic Research Service (ERS) study titled *Economic Aspects of Supply and Demand for Livestock Forage on Public Lands* which appears as Appendix G in the Rangeland Reform '94 DEIS. For the Montana/Dakotas Standards and Guidelines DEIS, budget items were indexed to 1994, the latest year for which agricultural prices indices were available.

ERS cost and return estimates and related production data and estimates differ from state and local data for a number of reasons. The Farm Costs and Returns Survey data are quite variable; consequently, some operations have characteristics or dollar amounts above or below the ERS averages. Likewise, average or enterprise budgets from any single state or subregion within a state would not necessarily coincide exactly with ERS averages, nor should they be expected to. However, as averages across all operations, including all levels of management skills, size, diversification, natural phenomena, and other factors, ERS estimates of permittee receipts and cash costs are within the range of budget estimates published by state extension personnel (for example, Torell and Word, 1993) and other published sources (Moline and others, 1994; Workman, 1994). Budget estimates from a variety of sources are both above and below ERS permittee estimates. The Rangeland Reform '94 Final EIS includes additional discussion of the ERS study (pp. 121 - 125).

11. **Comment:** The new surcharge fees were based on a newly-created formula which was different from the surcharge formulas presented in the Rangeland Reform EISs.

Response: The surcharge for pasturing unowned livestock was adopted in response to public comments during the Rangeland Reform EIS process. Based on those comments, the formula was modified to make the surcharge more reflective of local conditions, rather than adopting one westwide surcharge. The final surcharge formula adopted is equal to 35 percent of the difference between the federal grazing fee per AUM and the prior year's private lease rate for the appropriate state. The final surcharge rule was published in the **Federal Register**, February 22, 1995 (Vol. 60, No. 35, page 9899).

12. **Comment:** Your statement that permittees will try and adjust their lives, rather than leave ranching is incorrect. The open spaces left behind will be "sold" off.

Response: The available information indicates ranchers highly value their lifestyle and will try to maintain this lifestyle even in the face of major obstacles. The information and references that support this statement are located on pp.58-59 of the DEIS.

13. **Comment:** Concern that public opinion polls will be used to set policy, and these are misleading at best. The section on national attitudes adds little scientific information to the DEIS. Land use policy should be based upon scientific data, historical fact and economic reality.

Response: The section on national attitudes is included because public land management is of national interest and attitudes toward these issues can vary a great deal. The differences between national attitudes and those of people living in western communities can offer a better understanding of the publics that have an interest in these lands and give the public land manager an idea of how these publics feel they will be affected. The national attitude data presented in the DEIS was collected using the procedures outlined by Don Dillman in Mail and Telephone Surveys: The Total Design method (New York: John Wily, 1978).

14. **Comment:** The last statements on p.61 is not typical or truthful. While game species get some subsistence from winter forage on existing ranches, if a ranch with an allotment does go out of business and the allotment is used less, the game species are likely to have much more forage overall, even in the unlikely event that the ranch is completely subdivided.

Response: The quote the commenter is referring to is preceded by a passage indicating "Outdoor recreation encompasses a great variety of activities from hiking to hunting to ORV use. Not surprisingly, the messages received from groups representing these interests are diverse". The quote was given as an example of the opinions of some recreationists who are concerned

about the effects of management changes on ranch operations and the potential for the loss of open space and access.

15. **Comment:** The DEIS misleads the reader as to the importance of livestock grazing on public lands. In the social conditions section, the DEIS devotes pages to the attitudes and feelings of ranchers towards their livelihood and communities, thus making it appear that their social and economic well-being is of greater importance to the local, state, and national economies.

Response: Ranchers are discussed in depth because they are the group whose lives and livelihood are potentially most directly affected by the implementation of the S&Gs. The document also contains detailed discussions of national attitudes and public interest groups such as recreationists and environmentalists.

Wildlife

1. **Comment:** Predators and other wildlife such as antelope and weather conditions during spring hatching will have influences on bird populations well beyond the effects attributable to cattle grazing

Response: We agree that the success of spring hatching periods can be heavily impacted by weather conditions. Hiding and security cover is normally a function of residual vegetation. As nesting cover increases in height and possibly density, a hen is better able to protect broods from predation and weather. Extremely wet and cold weather during nesting and hatching periods is not conducive to high brood survival. Drought periods which retard vegetative growth certainly can reduce or eliminate cover requirements needed by birds. There can also be occasions where heavy use by antelope or domestic sheep in sagebrush ranges can adversely affect sage grouse populations.

Cattle grazing can also have very adverse effects on bird populations. If cattle use levels are high, vegetative growth can be affected to the extent that nesting and brood cover is significantly reduced or lacking. Bird populations then suffer accordingly.

2. **Comment:** The impact by wildlife grazing is a factor which needs to be addressed before adjustments are made to the stocking rate.

Response: It is true that the focus of this DEIS and the S&Gs is directed toward livestock grazing on BLM administered lands in Montana and the Dakotas. This should not be interpreted to mean that adjustments in livestock use is the only method that is available to deal with rangeland health problems. If one or more indicators suggest S&Gs are not being met, the manager must determine if livestock are at the root of the problem and, if so, take necessary actions through collaboration with those involved. It may be that a combination of factors going beyond livestock alone require attention, or, in some cases wildlife adjustments may be called for. In such cases, BLM managers would work with managers from the State Wildlife Agency who are charged with management and harvest of wildlife.

3. **Comment:** The major prairie dog colonies within the EIS study area are in the Phillips Resource Area, with smaller areas in the Big Dry RA. We are concerned about the analysis of this DEIS and how it corresponds to other BLM policies....We believe that livestock forage loss by prairie dogs must be re-examined and addressed in this DEIS.

Response: The DEIS does not amend that portion of the Big Dry and Judith/Valley/Phillips Resource Management Plans, specifically dealing with prairie dogs. The DEIS does acknowledge management of several prairie species that require short grass or bare ground. The reallocation of forage is beyond the scope of this document.

4. **Comment:** If livestock grazing is going to benefit bare ground and low vegetation associated species, then the BLM must also accept the consequent increase of those species (such as the increase in prairie dog acreage). Address how the S&Gs will fit with existing RMPs.

Response: Refer to the additions to the Guidance Common to All Alternatives section, in Chapter 2 of this FEIS.

5. **Comment:** Concern that the DEIS failed to address how implementation of the S&Gs might improve (or harm) specific wildlife habitats and species.

Response: We agree with your concern regarding certain specific habitats and wildlife species. You are correct that the DEIS is tiered to numerous other documents that speak to many of the issues you raise. We are depending on that to supplement the framework for the future that we believe this document will eventually provide.

Standard 5 is intended to maintain or improve native plant and animal communities to ensure the proper functioning of ecological processes and continued productivity and diversity of native lifeforms. Native animals and vegetation are management priorities. The

environment should contain all the necessary components to support viable populations of sensitive/threatened and endangered plant and animal species in a given area relative to site potential.

6. **Comment:** The DEIS p.38, admits a decline in neotropical species, but what is being done to change grazing patterns to allow for their nesting on BLM lands.

Response: All habitats on BLM administered lands are considered to be important as stated on p.38 of the DEIS. We continue to believe that implementation of the S&Gs will improve overall habitat conditions for most neotropical species. In Montana/Dakotas, the native plains-prairie grasslands are perhaps of first concern with riparian areas being highly important as well. The species listed as examples on p.38, Nongame Wildlife, happen to be species which require the plains-prairie grassland type. Of particular importance is the maintenance of native grassland species for nesting and other life requirements. It should be noted that while numerous species appear to be declining overall, southern Phillips County supports the largest known population of mountain plover with BLM administered land figuring prominently in the habitat area. Plowing of private grounds (habitat conversion) appears to be the main limiting factor to the plover in northern Montana.

7. **Comment:** The bison philosophy is unprofessional and unrealistic. Include data to support the opinion, or delete the recommendation that cattle must be managed more like bison.

Response: The prairie species of wildlife evolved with the grazing of the buffalo. This information is provided in the Draft EIS for the Management of the Charles M. Russell National Wildlife Refuge. This source was added to the references.

8. **Comment:** DEIS p.40: If there is evidence to support the degradation of wildlife habitat in the EIS area, it should be included in the document, otherwise, omit. Most of the crested wheatgrass seedings on BLM lands were probably made 50-60 years ago. Furthermore, they were necessary to stabilize the soil after it was nearly ruined by a flawed government policy. The seeding stabilized the sites but also provided early season forage for livestock and big game, thus taking pressure off of native range in the early grazing season.

Response: We agree that most of the crested wheat grass seedings took place over 50 years ago, that early spring forage is provided for livestock and some wildlife species and that the areas were seeded to reduce soil erosion. There are many areas which a monoculture of crested wheatgrass on BLM managed land that do not receive early spring grazing and these are the areas that would be converted to productive rangeland.

9. **Comment:** The DEIS makes no mention of the effects of livestock grazing on biological corridors. Include species-specific assessments of corridor location and use.

Response: We have reviewed the court ruling, Marble Mountain Audubon v. Rice that you referred to in your comments. The decision was directed at a unique drainage area that served as a significant corridor between two wilderness areas while considering impacts of a fire-recovery timber sale plan. The DEIS, through documenting effects of adopting regional standards is intended to describe conditions needed to maintain rangeland health. Assisting in such determinations are proposed indicators that are to help determine if we are being successful or not. We share your concern for maintaining or providing quality habitats that provide for unimpeded movements of wildlife. One of the indicators for the three Montana Districts, is specifically geared toward the prevention of habitat fragmentation through maintenance of "connected" habitat or corridors. The Dakotas District has a smaller land base, much of which has a scattered ownerships pattern, not blocked. The Dakotas RAC have added a similar indicator to help ensure that maintenance of intact habitats is specifically considered, where applicable.

10. **Comment:** A full copy of the Biological Evaluation and any Biological Assessment be included in the appendix.

Response: This is standard procedure and is included in the FEIS.

Hydrology/Water Quality

1. **Comment:** Work being done out of the University of Montana indicates that the placement of dams on rivers and the loss of channel scouring and movement is having a tremendous impact on sustainable cottonwood stands. Movement of channels and soil is needed for a functioning system.

Response: Normal fluvial geomorphological processes that result in seed bed preparation for cottonwoods are an integral part of the assessment of functioning condition of riparian areas. However, most natural sediment inputs are very small and can be incorporated by stream processes. It is **excessive** sedi-

ment, generated by human influenced actions, that often overwhelms the assimilative capacity of a stream and damages its biological components and capability to function properly. Livestock grazing can have a significant negative effect on the survival of cottonwoods. Unrestricted access to streams by cattle results in the destruction of the buffering capacity of the riparian zone, causing slumping streambanks, widened and shallower channels, loss of soil productivity through erosion, and sedimentation of the streambed.

2. **Comment:** Alternative and Impact Comparison Table, riparian areas and water quality: The release of water after a burn will have to be recognized for what it is. The increased volume will move some soil, but this mimics natural occurrences. The overall water quality and quantity will increase because woody species evapotranspirates water and a healthy range resource filters water better than timber or brush lands. Movement of soils via released water should not be used as an excuse to forgo moving the resource through the seral stages of condition. It is unnatural and ecologically unsound to have a large portion of the resource in late seral stages.

Response: Rangeland health has been described as "the degree to which the integrity of the soil and ecological processes of rangeland ecosystems are maintained" (1994 National Research Council, "Rangeland Health, New Methods to Classify, Inventory, and Monitor Rangelands"). Ecological processes include the water cycle (the capture, storage and release of precipitation) energy flow (conversion of sunlight to plant and then animal matter) and nutrient cycling (the flow of nutrients such as nitrogen and carbon through the physical and biotic environments). Ecological processes functioning within the normal range of variation will support appropriate kinds and proportions of flora and fauna.

Prescribed fire can be a beneficial tool to enhance rangeland health where frequency of fire occurrence has been influenced by fire suppression and affected by long term livestock grazing. Prescribed fire must be followed by adequate rest from livestock grazing.

3. **Comment:** Address dissolved oxygen.

Response: A paragraph addressing dissolved oxygen was added. Refer to the text changes section, for page 36, column 1 of the EIS.

4. **Comment:** Does the statement at the top of p.36 about reducing water quality impacts imply that allotments must meet water quality standards? If so, it should be stated more directly. If not, it should be clarified as to when they are allowed to not meet the standards.

Response: The statement on p.36 of the DEIS refers to the BLM National non-point source pollution strategy. Standards apply to the health of the land. All uses of public rangeland need to be conducted in such a manner that standards are achieved. Surface and groundwater quality will be maintained to meet or exceed applicable state and/or federal water quality standards.

5. **Comment:** Are the gradual improvements in water quality (p.66) in areas not meeting water quality standards enough to justify continued (although diminished) grazing in these areas? How closely will these improvements be monitored?

Response: It is BLM's policy to achieve Rangeland Health Standards, including water quality, through management of existing uses when feasible. We must recognize that areas found not to be meeting standards, and where livestock are a significant factor in not achieving standards, occurred over a period of time. Therefore, BLM will work with livestock permittees and other interested parties to take appropriate action that will make significant progress towards achieving the standard. Appropriate action is that which will result in significant progress towards fulfillment of the standards and conformance with the guidelines, that is, improvement of resource conditions on the ground. It may include actions such as deferment of grazing of key plant species or alternating growth season use to allow for regeneration of woody species, adjusting the season or duration of livestock use, establishing target utilization levels for herbaceous and woody vegetation and allowable streambank alteration, modifying the frequency of grazing, reducing livestock stocking rates, and modifying or relocating range improvements. The improvements from taking appropriate action will be monitored as closely as funding and staffing permit.

6. **Comment:** Only the B-1 Classification of Montana Water Quality Standards are listed in Appendix C (p.118). Although the Appendix need not list all B-1 streams, it should at least make it clear that the standards vary from stream to stream. Appendix C may mislead readers. Also, are there no fecal coliform standards in South Dakota (p.119)?

Response: An adjustment was made in the EIS. Refer to the text changes section; page 36, column 2, last sentence of the Water Quality section.

7. **Comment:** Potential conflict between Montana water quality division and the Carter County Conservation District (p.116 of the DEIS). Whatever assessment or testing needs done, it should be coordinated so that results are not different.

Response: As the designated management agency for carrying out State water quality requirements on lands under its jurisdiction, the BLM is to manage so that surface and groundwater quality will be maintained to meet or exceed applicable state and/or federal water quality standards. BLM is also subject to any local water quality requirements that a county may impose. BLM's nonpoint source management responsibility is to comply and be consistent with State water pollution control programs. If the Carter County Conservation District has specific water quality requirements that Carter County requires of all landowners, and that BLM management practices are not consistent with, BLM will work with the Carter County Conservation District so that we comply with their water quality requirements. However, since the State of Montana has primacy for enforcing water quality requirements in Montana we are uncertain how such a conflict can exist.

8. **Comment:** Water quality and beneficial use concerns warrant a thorough discussion and review of the specific streams/riparian areas within the affected environment that have been designated impaired as reported in the Montana Water Quality 1994 Report. Also, determine a Total Maximum Daily Load (TMDL) for impaired water bodies.

Response: The DEIS in Chapter 3 refers to the State of Montana biannual Water Quality 305(b) report to EPA. Appendix C contains an example of the Montana B-1 Classification water quality standards. Included in the B-1 Classification is a description of what beneficial uses B-1 classified water are intended to support. We did not list the contents of the States 305(b) report which contains water quality information on specific streams within the region due to its length.

The DEIS mentions that BLM utilized the 305(b) report and other information to make preliminary estimates of the impacts of application of the proposed water quality standards to intensively managed allotments.

It is the State which may determine total maximum daily load (TMDL) for stream segments on the impaired waters list 303(d) if best management practices (BMP) have been implemented and proven to be ineffective in making progress towards remediating water quality impairment. BLM is not authorized to establish TMDLs. Water quality is only one of many factors such as habitat modification, whirling disease and species competition with other fish such as brook and rainbow trout that may impact westslope cutthroat trout.

9. **Comment:** The FEIS should reflect the court decision by Judge Ancer Haggerty, that a state certification under section 401 of the Clean Water Act must be obtained prior to the issuance of a grazing permit. Any and all applicants for grazing allotments on BLM lands must first obtain the 401 certification from the proper state agency prior to the issuance of a permit. The FEIS should also stipulate that all current permits which were issued prior to Judge Haggerty's decision be suspended until 401 certification is obtained by the permittee. If any or all states in the study area do not currently have guidelines for the grazing of 401 certification for grazing permits, a plan must be developed between the BLM and state agencies to create such a process.

Response: Judge Haggerty's decision is a district court decision in Oregon regarding the USFS. This decision has no affect on BLM's grazing management program. There is a recent district court decision in Idaho that clearly states that 401 certification by the state is not required for Forest Service road authorizations because roads are clearly nonpoint source and therefore do not require 401 certification. Grazing is an agricultural use and is considered a nonpoint source activity by the States of Montana, North and South Dakota.

BLM in Montana and the Dakotas is the designated management agency for carrying out State water quality requirements on lands under it's jurisdiction. The BLM is to manage activities so that surface and groundwater quality will be maintained to meet or exceed applicable state and/or federal water quality standards. BLM's nonpoint source management responsibility is to comply and be consistent with State water pollution control programs.

10. **Comment:** Cryptosporidium has become a major concern. This waterborne parasite is the cause of numerous deaths, and is an issue which must be taken seriously. The S&Gs should address Cryptosporidium.

Response: Cryptosporidium parvum (C. parvum) is predominately a parasite of neonate animals. It is likely that a developmentally regulated antigen along the intestinal tract is responsible for neonate animals rather than adults, developing severe cryptosporidiosis. Sporulated oocytes of C. parvum is the resident stage and are found widespread in the environment. They can be found in lakes and streams. The time of year when Cryptosporidium becomes a problem in surface waters in most areas of North America is generally March-June, when spring rains increase runoff and many neonate animals are present in the environment to amplify oocyst numbers. Ruminants, cervids, and other mammals may all contribute to the numbers of

Cryptosporidium oocysts in the environment. Breakdowns or overloading of public water utilities have occasionally resulted in community outbreaks of cryptosporidiosis. In order to avoid cryptosporidiosis, or other water born parasites such as Giardia, you should filter or purify water before drinking waters that are not treated through public water supplies.

You refer to proposed rules by EPA to require "states to specify methodologies they would use to judge the adequacy of a watershed control to control the presence of waterborne Giardia. This rule would add Cryptosporidium". You go on to say that BLM must formulate a plan for avoiding such a contamination before one occurs. Any regulations requiring methodologies to judge watershed control of parasites will be established by the State not BLM.

BLM in Montana and the Dakotas is the designated management agency for carrying out State water quality requirements on lands under it's jurisdiction. The BLM is to manage activities so that surface and groundwater quality will be maintained to meet or exceed applicable state and/or federal water quality standards. BLM's nonpoint source management responsibility is to comply and be consistent with State water pollution control programs.

11. **Comment:** Special consideration should be made for grazing occurring in municipal watersheds, including any and all tributaries to these watersheds. The EPA has proposed to take action against the spread of such contaminations, as shown in its proposed Enhanced Surface Water Treatment Rule, published in the Federal Register on July 29, 1994.

Response: BLM in Montana and the Dakotas is the designated management agency for carrying out State water quality requirements on lands under it's jurisdiction. The BLM is to manage activities so that surface and groundwater quality will be maintained to meet or exceed applicable state and/or federal water quality standards. BLM's nonpoint source management responsibility is to comply and be consistent with State water pollution control programs.

12. **Comment:** Identify specifically-impaired waterbodies and specify a TMDL.

Response: The DEIS in Chapter 3 refers to the State of Montana biannual Water Quality 305(b) report to EPA. Appendix C contains an example of the Montana B-1 Classification water quality standards. Included in the B-1 Classification is a description of what beneficial uses B-1 classified water are intended to support.

We did not list the contents of the States 305(b) report which contains water quality information on specific streams within the region due to it's length.

The DEIS mentions that BLM utilized the 305(b) report and other information to make preliminary estimates of the impacts of application of the proposed water quality standards to intensively managed allotments.

It is the State which may determine total maximum daily load (TMDL) for stream segments on the impaired waters list 303(d) if best management practices (BMP) have been implemented and proven to be ineffective in making progress towards remediating water quality impairment. BLM is not authorized to establish TMDLs.

13. **Comment:** p.63 of DEIS: We suggest that the identification of impaired waters in State biennial water quality assessment reports and the State list of water quality limited water bodies be noted as a factor in determining and prioritizing whether corrective actions are taken. If impaired waters on BLM lands are identified by a state in a 305(b) report or 303(d) list, the BLM should prioritize efforts to review and adjust management activities to eliminate such water quality impairment.

Response: Water quality requirements are one of many legal and policy requirements that BLM must take into consideration in establishing priorities for corrective action. We choose not to list all of these requirements.

In EPA's oversight role for water quality and since BLM sends EPA Region VIII and the EPA Montana operations office our 305(b) report to the State of Montana, EPA should be aware that impaired waters on BLM lands are identified in the State 305(b) report. This report biannually identifies and updates existing and potential non-point source problems; develops a priority list based on problem severity; selects and adopt BMPs which can be applied to correct identified problems; establishes realistic abatement schedules for the identified problems.

14. **Comment:** Table 2.1 - Riparian Areas and Water Quality: Please explain the concern for noxious weeds under this subheading and not others. A more detailed explanation of the expected water quality improvements and an assessment of the level of water quality standards support should be included in this summary.

Response: The Riparian Areas and Water Quality section was chosen to address noxious weeds in the

summary of the alternatives and their environmental impacts.

As you are aware the State has not been able to complete getting the 303(d) list attached to the river reach III file and placed into digital format. Therefore the list of miles of stream in various states of meeting beneficial use is not available and determine the impacts of implementing the standards is also unavailable.

15. **Comment:** The CWA requires federal agencies to comply with water quality standards section 313. The document should specifically address water quality limited (WQL) water bodies, water bodies listed in the section 305(b) report and waters in the section 319(a) report. Montana, North and South Dakota have these reports available. The BLM should discuss compliance with State WQS with the appropriate state water quality agency and EPA. There is no mention of narrative biological or wetland standards, which are currently under development or exist in some states. Priorities to meet water quality goals should be discussed with state water quality agencies. State lists of impaired waters should be utilized by BLM.

For all alternatives, under the subheading of "riparian hydrology and water quality", BLM needs to address responsibilities under the CWA. Measurable goals should be included in the discussion. Use of information in Appendix C is not adequate or complete. The information in Appendix E is confusing and not specific enough to be useful. Please increase discussion of water quality limited and partially/non-supporting water bodies.

Response: In numerous places in the DEIS (pages 6, 7, 33, 36, etc;) BLM refers to its water quality obligations. On page 36 the DEIS refers to Appendix E where all three State 305(b) reports were used as a source of information to estimate affects of preliminary implementation of the proposed standards. This was an estimate based on available information and the 305(b) information from the states. Once the Standards are final we will visit locations on the ground and make an assessment of whether the standards are being achieved.

Refer to BLM's 305(b) report we supplied to both EPA Region VIII and the Montana operations office. This report describes our MOU with the State of Montana and our designated management agency status responsibilities. This would also explain how BLM discusses water quality standard compliance with the State. BLM has chosen not to discuss in this document draft narrative biological standards that have been under development for over ten years.

Standard & Guidelines

1. **Comment:** There is misunderstanding/debate on the benefits and problems associated with biotic soil crust. Researchers in Utah feel that soil crust is good because it curtails soil erosion and may enhance germination of some species. Alan Savory and his followers believe just the opposite. It depends on vegetation and soil types; it may be better to leave something this controversial and unknown out of the standards.

Response: The commenter is referring to a "biotic soil crust". Such an indicator is not on Butte's minimum list. There is an indicator relating to soil crusting and surface sealing, but is related to the physical, not biotic environment. There are geographic areas in the Butte District and Montana where a "biotic soil crust" can be used as both a physical and/or biotic indicator. BLM will use soil crusting as a physical environment indicator to measure upland health on those soil types where it does not occur naturally. This list is the "minimum" of indicators to be used. Research and experience will ultimately determine the value of a "biotic soil crust" as a biotic environment indicator to aid in the assessment of upland soil health on suitable soil types.

2. **Comment:** Percent organic matter or depth of organic horizon would be a good indicator of soil health.

Response: Percent organic matter (OM%) content of the surface horizon is an excellent indicator of soil health and quality. However, it is not easily evaluated in the field. OM content measurements require extensive sampling and laboratory testing. Organic matter content in rangeland soils responds very slowly to both extremes of land management. Organic horizons, found on forested soils and in hydric soils, are useful indicators and may be used on those soil types when required.

3. **Comment:** The FEIS should at a minimum provide an explicit base line on erosion rates, soil compaction and water channeling and run off levels for each soil type found in the analysis area.

Response: Indicators listed in the EIS are considered to be the "minimum" needed for field assessment of soil quality and health. Other soil health indicators will be selected as needed to address the requirements of the soil(s) and issue. The number of and combination of soil types within the geographic area of the EIS number in the thousands. Such a data base is far too voluminous to include in the EIS. It is not within the scope of the EIS to provide for such detailed information. Baseline information on soil physical and chemical properties and the required interpretations for land use are con-

tained in a national soil information system available to soil scientists. The soil data base will be used to evaluate soils within a watershed, allotment or for site specific purposes.

4. **Comment:** Westslope Cutthroat Trout (WCT) - American Wildlands is especially concerned with the serious decline and continuing threats to Montana's state fish. In the upper Missouri Basin this salmonid is barely surviving and its future is quite bleak. The U.S. Forest Service and BLM published the "Extinction Risk for Westslope Cutthroat Trout on Federal Lands within the Upper Missouri Basin in Eastern Montana." (September, 1996). One of the primary factors noted in the document for such a precipitous decline is "habitat degradation from land and water management practices".

Response: Putting riparian areas in proper functioning condition will improve Westslope cutthroat trout habitat. Further needed improvements in habitat will be accomplished at the activity plan level which is beyond the scope of this document. Refer to Chapter 2, Guidance Common to All Alternatives, which incorporates the interim guidelines, and final guidelines when developed, to BLM land use plans.

5. **Comment:** Concerned with the lack of S&Gs for the protection of cultural resources. The FEIS must include S&Gs for the completion of complete cultural resources surveys which satisfy the terms of the National Historic Preservation Act and its implementing regulations. These surveys must be done for all areas where the surface will be disturbed.

Response: Refer to Guidance Common to All Alternatives, page 5 of the DEIS, where it discusses the proposed range improvements and other activities on federal land are subject to Section 106 of the National Historic Preservation Act (NHPA), which requires that agencies consider the effects of federal undertakings on cultural resources.

6. **Comment:** Mitigation to exclude and/or minimize the impacts on areas which are commonly used for spiritual/ aesthetic purposes must also be included.

Response: Refer to Guidance Common to All Alternatives, page 5, of the DEIS. This section discusses that where BLM activities may impact areas of cultural or religious importance to Native Americans, the BLM will consult with those groups under the American Indian Religious Freedom Act (AIRFA), and the NHPA, if appropriate, to ensure that impacts to these groups are minimized.

7. **Comment:** Monitoring was emphasized in the Butte (p.9) and Miles City (p.16) S&Gs. Monitoring should be standardized as much as possible and be as accurately repeatable as possible.

Response: It is BLM policy to monitor all allotments at variable frequency, depending on their priority. BLM has published technical references with acceptable monitoring practices, which provides a degree of standardization.

8. **Comment:** A monitoring guideline should be added to the Lewistown S&Gs.

Response: A monitoring guideline was added to the Lewistown S&Gs.

9. **Comment:** Although the Miles City RAC addressed monitoring in Guideline #6, we believe that it is more appropriate to incorporate the monitoring concept into the Standards.

Response: Monitoring is more appropriately addressed in the guidelines. Standards are physical or biological conditions or functions required for healthy, sustainable rangelands.

10. **Comment:** Given the fact that monitoring practices will not vary substantially from district to district, we request that the FEIS include a region wide set of S&Gs for monitoring the effects of this proposal and the compliance of permittees. These S&Gs should stipulate explicit methods for determining the effects of this proposal on wildlife, riparian areas, wetlands, water quality, fisheries, soils, recreation, and plant composition. They must also include specific criteria by which the BLM can monitor the compliance of permittees with the new S&Gs. Again, these should include criteria for monitoring the effects on wildlife, riparian areas/wetlands, water quality, fisheries, soils, recreation and plant composition, as well as site specific issues such as road closures, motorized vehicle prohibitions, and T&E plant and wildlife protection.

Response: Monitoring for S&Gs will be based on the best science and information available including information on file as well as any on-the-ground analysis that may be needed to conduct assessments for proper functioning condition. BLM will use current data and monitoring data from approved BLM methods, as needed, to fill data gaps. New procedures are being tested to analyze upland conditions. Inventorying and monitoring should be in consultation with all interested parties.

11. **Comment:** The DEIS seems to indicate, in the case of the Butte District, that voluntary monitoring by permittees may substitute BLM monitoring if they follow certain criteria. This must be eliminated. If individual permittees wish to participate in the monitoring of their allotments, the official monitoring should done by the BLM itself, independent of permittees.

Response: BLM policy states that volunteers who are members of advocacy groups (including permittees) may participate in monitoring. However, quality control rests with the authorized officer, as does the responsibility for any follow-up administrative activity on data gathered by advocacy group volunteers unless there has been direct BLM participation or supervision.

12. **Comment**: You do not give quantitative measures of these components that would lead to consistent assessment of functioning condition across the district, or between agencies. I suggest you add quantitative measures to these components that are coordinated with the Beaverhead-Deerlodge National Forest. These quantitative measures would necessarily have to be quite broad in scope at this level. An alternative would be to say up front that the next level of analysis, the AMP level, would have specific quantitative measures of these environmental components to assess functioning condition.

Response: Monitoring for standards and guidelines should be based on best science and information available including information on file as well as any on-the-ground analysis that may be needed to conduct assessments for proper functioning condition. BLM will use current data and monitoring data from approved BLM methods, as needed, to fill data gaps. New procedures are being tested to analyze upland conditions. Inventorying and monitoring should be done in consultation with all interested parties, including other agencies.

13. **Comment:** Concern about the time it will take the permittee or lessee (for monitoring).

Response: We agree that most allotments should have a comprehensive monitoring plan to determine how management practices are affecting rangeland health. We also believe that this monitoring should be based on the best information available and/or developed and reviewed by those individuals involved, i.e., land manager, permittee/lessee, interested publics, etc. We agree that monitoring can be time consuming. However, while the initial investment of time could be considerable, this can be conducted by or with BLM personnel and other interested parties to establish a base line, follow up evaluation can be performed as needed.

14. **Comment:** We recommend that BLM evaluate its procedures to implement S&Gs to assure that they are consistent with water quality assessment procedures used by State and EPA nonpoint source pollution management programs and water quality standards (WQS) programs. The goal of the Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. It is our understanding that the BLM's process for implementing S&Gs relies to a great extent on the determination of proper functioning condition (PFC) for riparian and wetland areas, and that BLM procedures for assessing PFC evaluates physical conditions (i.e., hydrologic, vegetative, and geomorphic - erosional and depositional, conditions) in such areas, but does not directly evaluate chemical condition or aquatic biota of surface waters. We are concerned that there may be circumstances where PFC for streams may not ensure compliance with state WQS. For most circumstances it would appear that BLM procedures that assess hydrologic, vegetative, and geomorphic conditions to determine PFC would ensure that water quality are restored and maintained. The BLM's focus on physical conditions for assessing PFC may be appropriate; but we believe it would be prudent to specifically evaluate whether physical assessment adequately assesses chemical and biological conditions. We suggest that the BLM obtain concurrence from appropriate State and EPA Nonpoint Source Pollution and WQS program offices and that PFC assessment procedures are consistent with procedures use by states and EPA for assessing water quality and are adequate to assure WQS compliance.

Response: As a designated management agency to comply with State water quality requirements on land it administers, BLM actions are consistent with State nonpoint source management plans. Standard #2 sets proper functioning condition of riparian areas as a standard for rangeland health. Standard #3 sets State water quality standards as a standard for rangeland health. With these two standards and the a standard on providing habitat for native plants and animals, the physical, chemical and biological components of water are adequately addressed.

15. **Comment:** It would appear that the recommended standards for the Miles City District unequivocally state that PFC would be attained and that WQS would be met. This is more protective than the recommended Standards in the other districts (that allow progress toward PFC and WQS compliance to attain the standard). It may be helpful to discuss how the Butte, Lewistown and Dakota Districts will determine whether significant progress is being made towards PFC and WQS compliance, and whether there is any meaningful difference between this progress and the actual PFC and WQS compliance on the Miles City District.

Response: The wording "making significant progress towards" has been removed from Butte RAC Standards #1-#4, Lewistown RAC Standards #1-#4 and Dakotas RAC Standard #3 and #4. Refer to Chapter 2 of this final EIS. This is necessary in order to ensure that the Standards are a clear statement of the level of physical and biological condition or degree of function required for healthy, sustainable rangelands. Removing this phrase from the standards is also required in order to have Standards that are legally consistent with the regulations.

16. **Comment:** The EIS discusses monitoring in a very limited capacity. The use of plant utilization and stream channel shape to evaluate the success or failure of a prescribed grazing practice is not very appropriate, unless it is used under very strict guidelines with regards to the timing of the measurements, repeatedly done at exactly the same locations, and makes use of the same plant species. Any variations to these schedules or requirements will result in less than adequate data being collected. The other problem is that none of these measurements take into account wildlife impacts, unless the measurements are taken prior to livestock turn-out and then again immediately after the livestock are removed from the pasture. What steps is the BLM taking to ensure proper monitoring techniques will be employed in the evaluation of forage and other resources under the proposed S&Gs. Would it be possible for the RACs to include some definitive guidelines for monitoring that both the permittee and the BLM could follow?

Response: Monitoring techniques that have been proven effective, such as upland and riparian herbaceous utilization levels, streambank alteration, streambank stability, woody browse utilization, water quality, and riparian functioning condition and health evaluations will be used.

17. **Comment:** Limiting the protection of Miles City Standard #5 to sensitive/threatened and endangered species does not protect the ecosystem. The species included should include the species of special concern (or all candidate 2 species), which would include black and white tailed prairie dogs, swift fox, ferruginous hawk, burrowing owls, and other species associated with a healthy, diverse, and functional ecosystem not just sensitive plants and endangered species act listed species, which tend to be associated with aquatic habitats or are limited in distributions (i.e., black footed ferret). By using this standard, keystone species such as the prairie dog (Knowles and Knowles 1994) can be provided for, ensuring the survival and viability of numerous other dependent or linked species. As an alternative, keystone or indicator species could be selected to represent the numerous other species in the habitat. This would maximize biodiversity benefit relative to monitoring cost. The current list of animals which would be protected would not fill either of these roles. Thus, the standard should be revised to include those species in the diversity protection specified.

Response: Refer to the DEIS, Appendix G, Species of Special Concern, page 129.

18. **Comment:** Simply claiming that the proposed action will enhance wildlife habitat does not make it so given the vagueness of the S&Gs, it is impossible for both the decision maker and the public to make informed decisions in regards to this project's effects to wildlife. Modification to wildlife habitat is an inevitable consequence of livestock grazing, and issue of utmost importance. Yet the DEIS fails to address this issue by not providing specific guidelines. The FEIS must provide decision makers with a minimum percent of forage and cover available for big game and other ungulate species, minimum level of duff and ground cover available for small mammal species, and ways in which the BLM will avoid conflicting resource needs between wildlife and livestock.

Response: Specific habitat parameters change from one area to the next and will be addressed at the activity plan level. The level of detail suggested is beyond the scope of this document.

19. **Comment:** We request that the FEIS provide S&Gs which will effectively avoid habitat fragmentation and which will enhance, create, or protect biological corridors. Simply saying in the DEIS that these unspecified S&Gs will fulfill this issue is not enough. The BLM must clearly show what these measures are and how they will be effective. Particular attention should be paid to and explicit standards and guidelines crated to deal with, any and all possible conflicts between TE&S species and livestock, in which TE&S species would have the higher priority.

Response: The Dakotas RAC adjusted their Standard #5 to include a similar indicator (similar to Butte, Lewistown and Miles City) requiring specific consideration of habitat connectivity/fragmentation.

Habitat connectivity and fragmentation is an important issue that must be recognized in the Final EIS. Indicators which help determine the effectiveness of proposed Standards relating to these issues are currently in place for the Butte, Lewistown, and Miles City Districts.

20. **Comment:** Provide S&Gs for the possibility of livestock deaths due to predators. We request that the FEIS provide a clear explanation of the procedures which the permittee, and the BLM, will follow to deal with these so-

called problem predators, and under what circumstances permittees, ADC or FWS are allowed to kill them. We request the FEIS address effects on T&E species in the analysis area and potential effects expressed both in terms of local populations and overall populations and distribution of the species in question. Research shows that a minimum viable population of grizzly bears in the Northern Rockies is between 1670 - 2000 bears, much higher than previously thought. The land area required to support this number of bears, based on even the most conservative approach indicates that over 15 million acres of undisturbed habitat is required; more than in all the identified recovery zones for bears. A more realistic figure is somewhere around 25 million acres. Habitat corridors must be protected.

Response: The effects of Animal Damage Control on livestock, predators, and other populations have been addressed as part of the APHIS-ADC Environmental Assessment (Draft), and is beyond the scope of this document. BLM signed a national level Memorandum of Understanding (MOU) with APHIS-ADC for control of the ADC program. ADC acts within its regulations and all guidelines and rules that define the scope of their activities on public lands. BLM also has no authority over the specific management of grizzly bears.

21. **Comment:** S&Gs must include stipulations that, in the event there is an unavoidable conflict between grazing interests and biological corridors, the needs of the effected wildlife species will take precedent over the need for grazing.

Response: Refer to Standards and Guidelines response, #19.

22. **Comment:** Butte District (and Lewistown): p.8, col.1: What is plant status?

Response: Plant status is a term for an indicator used in the proposed upland assessment procedure, which is simply an observation of plant condition or health (i.e., alive, productive, decadent, lacks production, dead).

23. **Comment:** Butte District (and LDO): p.8, col.2 "...an adequate source of large woody debris" adequate for what purpose?

Response: Adequate woody debris would be beneficial in dissipating energy and protect banks during high flows, or wave action. Woody debris supplies nutrients, traps silt and provides cover for fish and other aquatic life.

24. **Comment:** Butte District (and LDO): p.9, col.1. Some species such as lodgepole pine reproduce only after a large disturbance (fire). They naturally occur in even-age stands. Having a variety of age classes present might indicate a problem (e.g., fire suppression).

Response: This is a correct statement. Lodgepole is recognized as an important part of the forest community.

25. **Comment:** Butte District (and LDO): p.10, col.1. Native species should be preferred as stated. In addition, sources of native seed should be encouraged in the private sector to supply future expanding needs. Pastures previously planted to exotic grasses should be reclaimed when possible, especially in areas where damage is being done to the soil and/or wildlife.

Response: In the Butte District, native plants are preferred as stated. However, it does not seem prudent or economically feasible to restore existing stands of "exotic grasses" that may have been in place and functioning for thirty years within the present plant community, unless they are failing to meet functioning condition.

26. **Comment:** Miles City S&Gs: p.15: specifically states that management for native communities is a priority, and that conversion to exotics will be minimized. Similar statements should be in all district S&Gs.

Response: BLM regulations require that standards for rangeland health must address many functions, some of which are: opportunity for seedling establishment of appropriate plant species where conditions allow, maintain or promote conditions to sustain native communities, emphasize native species in the support of ecological function, and incorporating the use of non-native plant species only in those situations which will achieve proper functioning condition. By addressing these functions, BLM maintains some degree of flexibility which allows managers and users the opportunity to address a wide variety of circumstances and situations. For example, while management of native communities in one area may be a high priority; other areas may feel a need to maintain the flexibility to choose the desired plant community that will meet the objectives and maintain the standard of that management area.

27. **Comment:** Fire suppression has had a major impact on many of the ecosystems in semi-arid western North America. In some areas it may be essential to reinstate natural processes, especially fire, in order to maintain grassland and steppe communities. We feel that the role of fire in

grassland, steppe and forest communities should be addressed in the S&Gs for all areas.

Response: We do not disagree that fire is a valuable tool, however, we feel that the guidelines are flexible enough to allow for the use of fire on a site specific basis as needed.

28. **Comment:** Miles City Standard #5 (p.15): suggests that plant community succession will be allowed in conjunction with grazing...what will be done if plant community succession conflicts with grazing??

Response: BLM grazing administration regulation objectives, as amended 8/21/95, in part are to promote healthy rangeland ecosystems and to provide for sustainability of the western livestock industry. The standards and guidelines identified in the DEIS are designed to help meet the objectives.

29. **Comment:** Unmeasurable Standards, specific example: The first Standard developed for the Miles City District. However, research has not verified appropriate amount and distribution of ground cover (i.e., litter live and standing dead vegetation, microbiotic crusts, and rocks/gravel) for specific ecological sites. Because the parameters cannot be systematically quantified, analyzed and evaluated, their evaluation regresses to a simple, unscientific subjective rating. Most importantly, how could ecological processes (hydrologic cycle, nutrient cycle, and energy flow) be monitored? The processes have not been quantified on most range sites, nor do field personnel have the methodologies or the equipment to monitor and interpret the changes. Thus, the Standard promotes and encourages a subjective approach. If proper functioning condition remains a standard, we suggest the development of suitable methodologies (scientifically approved) to monitor the parameters.

Response: BLM is presently developing and testing methods to measure and evaluate Standard #1.

30. **Comment:** Unmeasurable Standards, specific example: Standard #5 developed for Miles City. Habitat evaluation is not a simple task. Measurements, estimations, and descriptions are only a part of the wildlife habitat evaluation job. The weakest link in evaluation is usually the amount of data available to describe the habitat requirements of a species of interest. Even if the amount of available forage and cover are known, there are few wildlife species for which optimal conditions or even minimum limits, have been described accurately, thus, the final step in evaluation may be a subjective judgement by the manager. We suggest the development of scientific methodologies to evaluate habitat, or removing the Standard from usage at the fallback or district level.

Response: BLM field professionals have, for many years, taken advantage of available research and technical information when making evaluations and judgements on public land issues. This process often does include the application of professional judgement based on training, technical background, and experience. We agree that there are times that managers and technical specialists both would prefer having more available data at their fingertips. It would be incorrect, though, to believe that the final step in evaluation normally is limited to a manager's subjective judgement. Development or refinement of scientific methodologies will continue to be an ongoing process embraced by the Bureau. The existing Standard #5 for Miles City helps acknowledge this and sets the stage for the future.

31. **Comment:** In reference to Fallback Standard #4. It is not realistic to expect land managers to maintain diverse and productive populations of native species. Instead, it is reasonable to expect land managers to provide habitat for native species. Because the intent to manage habitat and not population number is emphasized in the proposed standards, we believe that their use, in comparison to the fallback standards, is more appropriate in Northeastern Montana.

Response: We agree with parts of the comment. The legal mandate of the Bureau is primarily limited to management of habitat, with the exception of Federally listed T&E species where certain population responsibilities also exist. Also refer to the response to Standards and Guidelines comment #32.

32. **Comment:** (Miles City Standard #5): The standard should be geared to the viability of the populations, not just habitat capability. Our knowledge of the habitat requirements of these species is limited, therefore, judging the viability of species by their unknown habitat requirements is unsound. Through the use of adaptive management, monitoring of population viability in certain habitat conditions can then lead to higher confidence that certain habitat qualities will ensure viability. This requires, however, that population viability be the standard, not habitat capability. Habitat quality does indicate other possible threats to population viability. It fails to take into account environmental and demographic stochasticity or the effects of population size on genetic variability. Each of these factors can have an important influence on population persistence (Gilpin and Soule 1986).

Response: We agree that direct populations and their habitat are necessarily closely related. This EIS focuses on habitat issues since the legal mandate of the Bureau is primarily limited to management of habitat, with the exception of T&E species. Because of this,

establishing an overall standard for population viability would be inappropriate. This should not be interpreted as an understatement of the importance of population viability. We also strive to work closely with the Montana Department of Fish, Wildlife, and Parks and the US Fish and Wildlife Service, who do have specific population mandates on public lands.

33. **Comment:** An overall concern with the proposed S&Gs is absence of quantifiable measures (indicators) for several of the Districts. We do not see how it will be possible to measure progress (or lack thereof), if quantifiable measures are not used in the standards. We encourage indicators that provide quantifiable objectives. For parameters such as surface litter, plant cover and distribution it would be helpful to suggest a percentage or other quantifiable measure.

Response: Some indicators are not appropriately judged by quantitative methods. In some instances we will utilize qualitative assessment techniques that have been field tested and calibrated. We have utilized these qualitative assessment techniques in the past and are able to judge whether we are achieving a standard or making progress towards a standard. Age classes of both plants and animals will be used to determine if Standard #5 is being met.

34. **Comment:** Quantifiable objectives are important; the purpose of these guidelines is to ensure that standards can be met or significant progress can be made toward meeting those standards. The document provides that guidelines must ensure adequate amounts of vegetative ground cover, standing plant material and litter, soil moisture storage, etc., are maintained. We agree, but as written we do not understand how the BLM will know if this is occurring, given absence of quantifiable indicators and absence of information on monitoring techniques to be employed.

Response: It is not appropriate to establish site-specific measurable criteria for the standards at a statewide or regional level. Quantifiable objectives required to obtain the Standards will be established on a site-specific basis and implemented through terms and conditions attached to livestock grazing permits and licenses if necessary. These will be such items as utilization levels of riparian or upland vegetation, seasons of use, frequency of grazing, streambank alteration limitations, etc.

35. **Comment:** It is not clear why the guidelines do not specifically address water quality protection.

Response: Water quality guidelines have been added to each set of S&Gs.

36. **Comment:** The recommended guidelines for the four BLM Districts are written in general non-quantitative terms rather than specific quantitative terms. We are concerned that overly general non-quantitative guidelines may dilute the utility of the guidelines in helping to meeting standards. We encourage the BLM and the RACs to consider including more quantitative specific indicators in their guidelines.

Response: The Guidelines (Guideline #4) for Grazing Management state that "Acceptable levels of streambank alteration and herbaceous/woody utilization should be identified on a site-specific basis and used as terms and conditions". Guideline #5 states that "Stages of plant growth, length of grazing period, target utilization levels, and frequency of grazing should be used to determine when livestock are ready to be moved to another grazing unit, instead of calendar dates". It is these site-specific terms and conditions to livestock grazing permits and licenses that will determine when livestock must be moved in order to achieve the standards. These determinations need to be made on a site-specific basis and it is not appropriate to decide these site-specific terms and conditions on a statewide or regional basis.

37. **Comment:** Butte/Lewistown S&G, standard #3: WQS actually have three components; beneficial uses (water quality beneficial uses, not to be confused with beneficial uses associated with water quantity), numeric and narrative criteria and non-degradation policy. The objective of the CWA "is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." This actually gives the BLM and the RACs the opportunity to utilize indicators of success other than by measuring just chemical parameters. We suggest that aquatic biota and habitat measurements should be included on the indicator lists as suitable indicators and provide land users better information. (Same applies to Miles City Standard)

Response: The indicators that accompany the water quality standard or other surrogate indicators recognized by the State will be utilized to determine if the standard is being met.

38. **Comment:** Butte/Lewistown Guidelines do not address: 1) managing to maintain and improve water quality (#1), 2) inventorying the state of water quality impacted by pastures and allotments (#2), 3) developing management strategies that produce sustainable in-stream uses and water quality (#3), and 4) water quality in the management of noxious weeds (#8).

Response: A guideline was added that addresses water quality. Refer to Chapter 2 of this final EIS.

Through BLM's existing memorandum of understanding with the State, BLM on lands under it's jurisdiction: identifies and updates existing and potential non-point source problems; develops a priority list based on problem severity; selects and adopts Best Management Practices which can be applied to correct identified problems; and reports accomplishments to the State and EPA.

The Grazing Management Guidelines are not the place to discuss provisions of BLM's water quality MOU with the States.

39. **Comment:** Miles City/Dakotas Guidelines do not address: 1) managing to maintain and improve water quality (#1); 2) inventorying the state of water quality impacted by pastures and allotments (#3); 3) developing management strategies that produce sustainable in-stream uses and water quality (#4); 4) water quality in the monitoring guidelines (#6); 5) water quality should be considered in the management of noxious weeds.

Response: See response to comment 38.

40. **Comment:** We request that the FEIS include specific S&Gs which relate to the need to minimize the effects of livestock grazing on recreational uses of BLM lands. In particular, we request that these S&Gs include mandatory mitigation measures to minimize impacts on trail systems, fishing and hunting opportunity, and visual/aesthetic uses of the analysis area. Such mitigation must include provisions for the exclusion of and/or minimization of effects of livestock on trails and from the banks of any and all fish bearing streams, lakes and ponds. Mitigation to provide adequate forage, cover, and wintering/calving habitat for big game species.

Response: The proposed S&G's should minimize impacts to recreation areas, especially riparian areas. Developed recreation sites are normally protected to exclude grazing. The majority of recreation use on the public lands is dispersed; hunting, fishing, hiking, camping, etc. Areas requiring provisions for protection from livestock will be handled on a site specific basis.

41. **Comment:** Butte District (and Lewistown): Springs and seeps are unusual habitat features in many of our semi-arid landscapes, and they often support rare organisms. Springs and seeps should also be managed to protect their unique biota.

Response: As stated in the DEIS on page 8, column 1, the ecological functions of seeps and springs would be protected which would include healthy populations of unique biota.

42. **Comment:** Promoting the growth of willows and other riparian woody shrubs as suggested in the Lewistown (p.11) S&Gs is desirable.

Response: The document supports this.

43. **Comment:** On pages 8 and 10 "riparian area widening" is given as an indication of PFC or progress toward PFC. There are many reasons and circumstances that may be true, but may also be misleading.

Response: The DEIS acknowledges that no single factor provides a complete picture of the health of riparian areas. Refer to page 32 of the DEIS.

44. **Comment:** Page 11 of DEIS states that desired future conditions in plant communities and streambanks will be determined on a case by case basis. Who will make such decisions, and at what planning level? We have the same question for the acceptable level of use for soil and water conditions for Lewistown Guidelines #1.

Response: Desired future condition will be identified in the specific objective at the activity plan level. The authorized officer or Area Manager will make these decisions.

45. **Comment (letter #15, 18):** Miles City Standard #2 (p.14) asks for the exclusion of ephemeral streams from riparian standards and guidelines. Some studies suggest that many streams have become ephemeral because of grazing. How then will the BLM or other decision maker define ephemeral streams, and will they take this issue into account?

Response: The standard reflects BLM National Policy. The fact that an area is ephemeral is not a factor. Additional policy for Montana and the Dakotas includes areas that have the potential for vegetation dependent on free water in the soil. Thus, all areas that have, or have the potential to have, vegetation dependent on free water in the soil are considered riparian areas. The standard reflects this by saying areas "...that do not exhibit the presence of vegetation dependent on free water in the soil...".

46. **Comment:** Page 18 of the DEIS should clearly include grazing as a cause in the "altered streambank" section. Also, with the proper monitoring, active downcutting is not so hard to recognize. The background information in this section is much weaker than most other sections of the DEIS.

Response: Livestock is identified as one of the causes of stream bank alteration on page 18. Natural and

management induced streambank alteration, stubble heights and utilization of herbaceous and woody vegetation are critical factors which must be evaluated in any grazing strategy. Where appropriate acceptable levels of streambank alteration and herbaceous/woody utilization should be identifies on a site-specific basis, and used as terms and conditions for livestock permits and licenses. It is not appropriate to set these use levels on a regional or statewide basis.

47. **Comment:** Miles City Standard #2 promotes subjective science. Research has not quantified the amount of stream energy and assure a proper functioning system. In the sense that the subjective approach of evaluating functional systems encourages dialog and discussion, the approach may be positive when two diverse groups meet on the ground. However, the subjective approach is negative and erroneous conclusions are reached when the evaluation is conducted by biased, or inexperienced personnel. Therefore, we strongly recommend the development of methodologies to quantify functional status, or the Standard should be revised or omitted.

Response: The methodology to determine the functioning condition of riparian areas used by Montana BLM is quantified.

48. **Comment:** No mention is made in the DEIS of fisheries and the impacts of grazing on fisheries. Of special concern to us are the effects of grazing on inland native species, particularly the Westslope Cutthroat Trout and Bull Trout. The FEIS must provide for the enhancement and protection of their habitat. Specifically, the FEIS should include S&Gs which provide each district with a base level of habitat needs which must be preserved in watersheds occupied by these species or which have a high potential for occupancy in the future. These guidelines should address at a minimum, water temperature, pool frequency, woody debris recruitment, sediment levels, nutrient loading levels, spawning and rearing habitat, and hiding cover. Given that the needs of these species do not vary due to geographical location, these standards should be very specific and should apply to the entire analysis area. The S&Gs should provide for the enhancement and or protection of these waterways through the mandatory modification of all proposed and existing allotments to exclude livestock from stream sides or areas which may promote increased erosion, water run off, or bank destabilization. For waterways, which are unsuitable habitat types for Westslope Cutthroat or Bull Trout, guidelines, dealing with the afore mentioned issues, should be drawn up which will enhance and protect the health of the water way and which will ensure that no further degradation from livestock grazing occurs.

Response: Putting riparian areas in proper functioning conditions will improve the habitat for cutthroat and bull trout. Guidelines have been prepared for the cutthroat trout and are part of this document, see page 5 of the DEIS. BLM land with bull trout was originally excluded from this document, but has been added to the supplement to the draft and in this FEIS. The specific items mentioned for fish habitat will be addressed at the activity planning level and are beyond the scope of this document.

49. **Comment:** Riparian-wetland areas are the true indicator of the condition of grazing allotment. Cattle will stay in creek bottom areas because they do not have the energy to utilize the upland grasses. These bottom areas will suffer first from domestic livestock grazing.

Response: This concern is addressed through implementation of Standard #2, which ensures riparian and wetland areas are in proper functioning condition.

50. **Comment:** Miles City Guideline #4: What are acceptable levels of streambank alteration? Who will make this determination, and at what planning level?

Response: Acceptable levels of streambank alteration are those levels which can occur and still achieve all of the standards. If necessary determinations of acceptable levels of streambank alteration will be made on a site-specific basis. The authorized officer, upon receiving input from staff, will make the final determination of acceptable levels of streambank alteration. Staff should discuss streambank alteration as well as stubble heights, and utilization of herbaceous and woody vegetation together with livestock permittees and other interested publics. The appropriate planning level for these determinations is during the development or modification of activity plans.

51. **Comment:** Most of the RACs addressed water quality. While we agree with the intent of the standard, we also realize that strict enforcement of the standard (as the minimum acceptable level in achieving an objective) is impossible because methodologies to scientifically quantify and analyze the source of non-point pollutants on rangeland are non-existent, and the financial resources required to quantify non-point source pollutants over large watersheds are unavailable. Furthermore, many of Montana's waterways do not meet the State law because of natural background level (i.e., arsenic level in the Madison River). However, Montana Dept. of Environmental Quality is required to list water quality limited streams. In most cases, these drainages made the list because a survey indicated excessive siltation or sediment or because of habitat concerns. Because livestock was usually listed as the causative factor, it

is conceivable that the BLM would "be required to" decrease grazing use throughout these areas. Therefore, we believe that the Water Quality Standard is too broad and general in scope. We suggest that the broad-scope standards either be revised to consider natural background level, or be replaced by Standards developed for implementation at the AMP level.

Response: The Bureau of Land Management is not able to selectively choose which laws and regulations it must obey. BLM will manage lands under it's jurisdiction to meet or exceed State water quality requirements.

52. **Comment:** The DEIS failed to adequately protect and improve waters that currently do not meet state standards and support beneficial uses. In the DEIS, the standards usually say something like "water quality meets or is making significant progress towards state standards." In our estimation, this appears to be an objective not a standard. There are no definitions or guidelines to tell the public what "significant progress" means. Does this mean that water quality can still be below state standards in 25 years because the waterbody is making progress towards state standards? The standard in the FEIS should be to meet all state water quality standards and to support designated beneficial uses. For streams or other waterbodies currently below standards, there can be no additional pollution added by management activities until the state has developed a TMDL for the degraded waterbody. In the DEIS, the S&Gs do not make this clear to the public or the decision maker. For all allotments in water quality limited segments, significant progress is not legally viable. The standard should be for a TMDL to be developed in conjunction with the appropriate state agency and approved by the EPA. The standard should also state, that in the absence of a TMDL, livestock grazing activities cannot add any additional pollution to these water quality limited segments.

Response: The wording "making significant progress towards" will be removed from Butte RAC Standards #1-#4, Lewistown RAC Standards #1-#4 and Dakotas RAC Standard #3 and #4. This is necessary in order to ensure that the Standards are a clear statement of the level of physical and biological condition or degree of function required for healthy, sustainable rangelands. Removing this phrase from the standards is also required in order to have Standards that are legally consistent with the regulations. Refer to the changes made to Chapter 2 in this final EIS.

53. **Comment:** The FEIS should provide nutrient loading levels and other guidelines for nonpoint-source pollution caused by livestock grazing. These levels should represent the maximum limit over which future proposals can not go. The FEIS should also provide mandated measures which decision makers are required to take to help counteract past impacts on the soils in the analysis area.

Response: Specific water quality criteria, such as nutrients are included in the RACs Standard #3 Water quality meets State standards.

54. **Comment:** Grazing practices can result in increases in nutrient (i.e., nitrogen and phosphorus) levels in surface waters. We recommend that you add nutrients to the water quality parameters that should be assessed to determine WQSD compliance that are listed with the recommended Standards for the BLM Districts in Chapter 2 of the DEIS. We note, for example, that Montana's WQS (ARM 16.20.633) prohibit excessive amounts of nutrients attributable to agricultural practices that will create nuisance or undesirable conditions in State surface waters. You may want to include ARM in Appendix C.

Response: Specific water quality criteria, such as nutrients are included in the RACs Standard #3 Water quality and meets State standards.

55. **Comment):** State water quality standard regulations should not be considered synonymous with BLM standards. The listing of the state water quality regulations by BLM has not provided a clear standard that can be easily interpreted. It is not clear how the state WQS are to be used to measure success or implemented by planning documents.

Response: Standards for rangeland health, by definition, are expressions of levels of physical and biological condition or degree of function required for healthy, sustainable rangelands. Determination of rangeland health is based upon conformance with these standards. Application of the standard to the site considers the potential for the site without regard for the type or levels of use or management actions or decisions.

In development of standards with the resource advisory councils (RACs) both the RACs and the BLM clearly understood water quality standards. Review of the standards also determined that the water quality standard was a clear statement of the levels of physical and biological condition or degree of function required for healthy, sustainable rangelands.

The indicators that accompany the water quality standard or other surrogate indicators recognized by the State will be utilized to determine if the standard is being met. Review pg. 63 of the DEIS for more information regarding implementation of S&Gs.

56. **Comment:** Dakota District Stnd #2: This standard fails to address all of the components of water quality standards. Limiting the standard to chemical or numeric criteria is not sufficient to meet BLM obligation under the CWA. See Butte/Lewistown Standard #3.

Response: A change was made to Dakotas Standard #3: Change word "criteria" to "standards. Refer to text changes in Chapter 2 of this EIS.

57. **Comment:** The EIS does not adequately address natural changes in hydrologic function as a contributing factor to increased streambank instability. It implies that even naturally unstable hydrologic environments are often linked to livestock use of resources in affected watersheds. The short term (10 years or less) application of this theory plays well in depicting livestock impacts to riparian environments, but the application of this theory over the long term (100 years or more) sees the picture change greatly. Many streams will appear to be recovering from past adverse impacts over the short term, only to be completely ravaged again by a severe high water or major flood event. This impact will essentially return the stream to a similar condition that existed before the recovery began, and often will leave the riparian area in worse condition than previously existed....What steps are to be taken so that these types of impacts are not attributed to livestock use, and thus result in further AUM reductions on some allotments?

Response: Trampling by livestock can increase instability of streambanks. When this occurs on streambanks that have a high degree of natural instability the impacts are exacerbated. BLM, hopefully in conjunction with the livestock permittee and any other interested publics, will determine whether or not an area is meeting standards. If an area is not meeting standards we will then determine if livestock are a significant factor contributing to the area not meeting standards. The range of climatic events, including rare high streamflows and there affect on an area, are taken into consideration when evaluating functioning condition of riparian areas.

58. **Comments:** Miles City District, p.12, col.2, It is not the processes alone that produce social values such as more fish, etc. For example, a native marsh can be destroyed and replaced with a restored marsh. The restored marsh will usually support only a fraction of the native species (biological diversity has value to society) as the native marsh, even though it will have similar functions and processes.

Response: The draft EIS addresses this, refer to page 12, col. 2.

59. **Comment:** Miles City District p.12, col.2, Not only is grazing of public lands sanctioned by law, but a large portion of BLM lands in eastern Montana should be grazed in a responsible manner in order to provide disturbances to which the systems are adapted.

Response: Refer to page 12, col. 2 of the draft EIS.

60. **Comment:** Miles City: p.13, col.1 The statement "it is assumed that most areas will be grazed.." seems to give livestock grazing top priority on BLM lands. In many cases grazing is an appropriate use, but there is not a priori reason to assume that grazing is how the land should be used unless proven otherwise.

Response: We agree, livestock grazing is a recognized use of public rangelands as long as it contributes and complements a healthy rangeland situations.

61. **Comment:** Somewhat specific guidelines regarding early spring grazing on wet soils and late summer grazing in riparian shrub communities (Lewistown S&Gs p. 12) is a good idea.

Response: The draft EIS acknowledges this.

62. **Comment:** Miles City (p.16): promote the use of rotation grazing. This is essential because repeated single season or season-long grazing selects for some species and against others, resulting in a loss of diversity.

Response: We agree. The draft EIS acknowledges this.

63. **Comment:** Butte guidelines #2 (p.9): A basic range resource should only have to be inventoried once to see if it is suitable for grazing. In the long run the only time a grazing resource should not be grazed is when the potential to graze does not exist. Different systems can be designed to apply the grazing pressure that is essential to keep a grazing resource ecologically healthy.

Response: We agree as long as livestock grazing is conducted in a manner that allows standards to be achieved. Inventories are also used to measure or provide insight into the effects of on-going management.

64. **Comment:** Lewistown Guideline #2: Question if woody shrub species would control animal access to a stream. There may be short patches they don't go through, but that would only be because there is an easier route around. But you need to give another, more plausible benefit of healthy shrubs than controlling animal access.

Response: Guidelines are developed for grazing management. Lewistown Guidelines #2, encourages the growth and expansion of woody shrubs to aid in controlling or limiting (livestock) access to the streambanks.

65. **Comment:** Lewistown District guidelines: There must be easy methods for determining when the cattle must be moved. Nothing in the draft document indicated when or what stage of resource depletion must occur before cattle must be moved.

Response: The Lewistown District Guidelines (Guideline #4) for Grazing Management state that "Acceptable levels of streambank alteration and herbaceous/ woody utilization should be identified on a site-specific basis and used as terms and conditions". Guideline #5 states that "Stages of plant growth, length of grazing period, target utilization levels, and frequency of grazing should be used to determine when livestock are ready to be moved to another grazing unit, instead of calendar dates". It is these site-specific terms and conditions to livestock grazing permits and licenses that will determine when livestock must be moved in order to achieve the standards. These determinations need to be made on a site-specific basis and it is not appropriate to decide when livestock should be moved in an analysis of this scope.

66. **Comment:** Some coliform organisms (p. 20) are from soil and plants, but what percent? In many cases they are largely from cattle during the active periods of grazing. It is also stated that "coliform not to exceed the state average for the state". What does this mean exactly?

Response: The phrase "Acceptable water quality is indicated by: coliform levels which do not exceed the State average for the site (not state)" means that coliform levels are an indicator for water quality.

All uses of public lands must be consistent with State water quality requirements. There are several water quality criteria for fecal coliform organisms depending upon the State designated use for a water body. For instance, waters designated for limited contact recreation in South Dakota have a less restrictive requirement for fecal coliform than do waters designated for immersion recreation. Class I streams in North Dakota have a fecal coliform standard of "200 fecal coliforms per 100ml. This standard shall apply only during the recreation season May 1 to September 30." Grazing on BLM administered public lands will conform to the state water quality standard that is appropriate to the specific water body.

67. **Comment:** Miles City Guideline #5. The reference to the three year time period is specific; the rest of the guidelines are not that specific.

Response: This guideline addresses the need for grazing to allow for seed production. Guidelines developed by the RACs were slightly modified from the State of Montana Agricultural Best Management Practices for livestock grazing (grazing BMPs). This was a four year effort by representatives from the private livestock industry, university, state and federal management agencies and conservation groups to come up with livestock grazing practices that would consider the resource values and the livestock industry's needs.

The grazing BMPs contain such items as utilization limits, slope, distance to water, differentiation between natural and management-induced streambank alteration and diverse age classes because these are important items to consider when developing and monitoring the success of grazing management plans.

68. **Comment):** Miles City Guideline #3 needs clarification. What is meant when you suggest "unsuitable or potentially unsuitable areas may be...managed more intensively"?

Response: The statement "Unsuitable or potentially unsuitable areas may be fenced into separate management areas, or managed more intensively." is intended to address areas that can not or should not be grazed. This includes areas which contain poisonous plants such as larkspur or portions of an area which can not be grazed and still meet the standards.

69. **Comment:** Butte S&Gs implementation: stocking reductions should not be a last resort. Reductions in number of grazing animals should be an option readily available to the BLM grazing managers.

Response: Butte Guidelines outline several options, including stocking reduction, which can be implemented to ensure standards are achieved.

70. **Comment:** Butte S&Gs - grazing systems: fencing has a large effect on wildlife. Grazing systems that require less barbed wire fencing is the preferable system (effects on wildlife).

Response: Appropriate fencing should be worked out on-the-ground designed to solve the specific problem.

71. **Comment:** Various RACs lack consistency ...we encourage you to strive for as much consistency as possible. Lack of consistency with terminology (i.e., within regard to historic use).

Response: The proposed Standards and Guidelines were developed in partnership with four Resource Advisory Councils (RACs) in Montana and the Dakotas. Variations between States or regions is acceptable and very likely appropriate. Each State or region must consider local needs and input, including RAC recommendations to ensure a useful and acceptable product. Coordination between States and the minimum requirements of the 4180.2(d) regulations insure a basic level of consistency between States. Within the three state area of Montana and the Dakotas the standards are very similar and were therefore analyzed as one alternative in the Environmental Impact Statement.

Historic use in the context of Lewistown's Grazing Management Guideline #1 refers to the fact that a proper balance between soils, water and vegetation over time may have been altered by past use. For instance, seedings of crested wheatgrass may have changed the balance between soils, water and vegetation that existed before the seeding. The same can be said for the construction of reservoirs which may have altered the hydrologic regime.

The authorized officer will determine when it is possible to locate facilities to avoid riparian-wetland impacts. Facilities will not be located in riparian-wetland areas if by doing so standards cannot be met. Remember guidelines are preferred or advisable approaches to grazing management practices determined to be appropriate to ensure that standards can be met or that significant progress can be made toward meeting the standard(s).

72. **Comment:** The standards developed for uplands do not equally identify the importance of short grass prairies for many endemic and game species of wildlife. The FWS believes that uplands can not be considered to be functioning properly without a full compliment of wildlife species on the uplands based on their habitat capability. Properly functioning upland ecosystems within the areas covered by these S&Gs include, but are not limited to habitats supporting populations of mountain plovers, swift foxes, black tailed prairie dogs, sharptailed grouse, prairie chickens, elk, mule and whitetail deer, ferruginous hawks, and burrowing owls. Black tailed prairie dog colonies alone have been shown to have more than 140 species of wildlife associated with them, including Federally listed T&E and Candidate species. Prairie dogs probably more than any other species have been adversely impacted by past management practices occurring within upland habitats. The Service encourages the Bureau to take the opportunity presented by the development of the regional standards to recognize the importance of prairie dog and other upland wildlife resources in the biotic component of a properly functioning upland area. This recognition should be included in the guidance common to all alternatives section of the document.

Recommended Change: Refer to the changes in Guidance Common to All Alternatives in Chapter 2 in this final EIS. A section on "Native Species Habitat" was added.

73. **Comment:** Standardize the format used for the S&Gs.

Response: Each Resource Advisory Council's (RAC) Standards and Guidelines was placed in the Draft Environmental Impact Statement in their entirety. The format is identical between the RACs except for the Preamble in the Butte Standards, the Preface material in the Miles City Standards and the Background material contained in the Dakota's Standards.

74. **Comment:** How does the biotic component fit into all the standards and guidelines?

Response: Refer to the changes in the Guidance Common to All Alternatives section in Chapter 2 of this final EIS. A section on "Native Species Habitat" was added.

75. **Comment:** Many of the S&Gs allow for an area to be in or making significant progress towards achieving a desired condition, usually proper functioning condition. The statement "making significant progress towards" is not necessary and should be removed to avoid confusion.

Response: The wording "making significant progress towards" has been removed. Refer to changes in Chapter 2 of this final EIS.

76. **Comment:** RACs should be encouraged to look beyond the BLM suggested S&G and develop guidelines specific to their resource area which address any specific, local problem. While the DEIS covers lands not part of the ICRB ecosystem, the recently released scientific assessment has some information which could be applicable and helpful for improving current conditions.

Response: The Resource Advisory Councils developed standards and guidelines that they thought considered local needs and conditions.

Aquatic systems are addressed in several of the standards. The standard for riparian areas to be in proper functioning condition will address many aspects of aquatic systems.

The standard that water quality meet State standards will address the physical, chemical and biological conditions of water in aquatic systems.

The standard that requires "Habitats are provided for healthy, productive and diverse native plant and animal populations and communities. Habitats are improved or maintained for special status species..." will insure that aquatic systems will provide the habitat needed for native plants and animals.

77. **Comments:** The other RAC's S&G contain some questionable language which has the ability to weaken their implementation and will not necessarily meet the requirements.

Response: The commenter does not specify the questionable language they are referring to, and therefore, cannot be responded to.

78. **Comments:** Streamline different RAC S&Gs to more closely resemble the Butte RAC S&Gs.

Response: Refer to comment response 72 that addresses consistency among RAC S&Gs.

79. **Comment:** Butte Standard #1: "infiltration" be added as an indicator of the physical environment.

Response: Infiltration is addressed as an indicator of the proper function of upland areas (Butte Standard #1) through the existing indicators of the physical environment. The existing indicators allow you to determine if infiltration appropriate to the site is occurring.

80. **Comment:** Butte Standard #5: the phrase "as necessary" be removed.

Response: The phrase "as necessarily" implies that actions would only be taken when it is possible or necessary to meet the standard.

81. **Comment:** Butte Guideline #4: be added to reading; "Compatible seasons and duration of use, rest periods, stocking rates, structural facilities, and management activities, should be designed and implemented to ensure that standards are achieved. Defer each pasture from grazing, at least until seeds set, at least once every 3 years. Stages of plant growth, length of grazing period, stubble height, target utilization levels, and frequency of grazing should be used to determine when livestock area ready to be moved to another grazing unit, instead of calendar dates. Caution should be used to avoid early spring grazing use when soils and streambanks are wet and susceptible to compaction and physical damage that occurs with animal trampling. Likewise, late summer and fall treatments in woody shrub communities can result in excessive utilization".

Response: Guidelines developed by the RACs were slightly modified from the State of Montana Agricultural Best Management Practices for livestock grazing (grazing BMPs). This was a four year effort by representatives from the private livestock industry, university, state and federal management agencies and conservation groups to come up with livestock grazing practices that would consider the resource values and the livestock industry's needs. The grazing BMPs contain such items as utilization limits, slope distance to water, differentiation between natural and management-induced streambank alteration and diverse age classes because these are important items to consider when developing and monitoring the success of grazing management plans.

82. **Comment:** Butte Guideline #5: be added to reading: "The development of springs, seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions and processes, wildlife habitat and cultural and historical/archeological/paleontological values associated with the water source."

Response: By protecting the ecological functions and processes of springs, seeps and other sites utilized for water developments the associated wildlife habitat of these areas will be protected. Cultural and historical/archaeological/paleontological values associated with water sources are protected through the project design, clearance and environmental assessment that occurs for these projects.

83. **Comment:** Butte Guideline #6: the phrase "when possible" be removed.

Response: The phrase "when possible" implies that actions would only be taken when it is possible or necessary to meet the standard.

84. **Comment:** Butte Guideline #9: change to "native species are emphasized for rehabilitating disturbed rangelands".

Response: Butte Guideline #9 is adequate as written.

85. **Comment:** Butte S&Gs: At the present time, the grazing resource is outside the historical range of variability due to the lack of fire and the encroachment of brush and timber. This also results in short circuiting the water cycle because of evapotranspiration, consequently instream flows are less than they were historically. As this is corrected, streamflows will increase and stream channels will adjust to accommodate the increased flows. The standard should accommodate this occurrence.

Response: If riparian areas are in proper functioning condition they will accommodate increases in

streamflow that result from woody to herbaceous vegetation conversions.

86. **Comment:** Butte Standard #3: Water quality standards must be economically and realistically achievable.

Response: Water quality standards are set by the State. It is up to the State to determine whether their water quality standards are economically and realistically achievable. This is done when the State sets water quality standards for a particular water body. The Bureau of Land Management is required to comply with State water quality standards on the public lands under it's administration.

87. **Comment:** Most of the Proposed S&Gs cannot be scientifically quantified and encourage the use of subjective methodologies. National and Regional Standards are inappropriate and should be at the AMP level. Once the desired plant community was determined for an ecological site, the specific management action to move the various plant communities toward the desired community would be the appropriate standard. These might include a grazing management plan specifying rotational grazing, season of use, and animal number. By implementing standards at national and regional and state levels, the capabilities of land managers to properly manage land are severely limited.

Response: Standards and guidelines were developed and approved by local Resource Advisory councils for Butte, Lewistown, Miles City and Dakotas Districts, individually, in an effort to provide local input and awareness. Terms and conditions which accomplish standard and guideline direction are developed at the local level.

88. **Comment:** Concern that several standards may be taken out of context. For example, Miles City Standard #5 could be applied out of context, and used to justify the removal of livestock from public lands to promote the introduction of the wolf, or other species that are incompatible with today's society.

Response: The Bureau is currently bound by law and regulation which require maintenance of habitat standards and protection of T&E species and habitat. The S&G EIS will not change this. As mentioned elsewhere, the proposed standards are designed to maintain or achieve healthy public lands while allowing for the development of local goals and objectives. The guidelines are intended to provide direction. There are times that competing uses do require specific action, resulting in everyone not being completely satisfied. Rather than anticipating the removal of livestock, a wide variety of changed or modified grazing strategies would likely be considered as the tool to achieve healthy rangelands.

89. **Comment:** RACs should consider the influence of natural events on the achievement of standards. Drought and other environmental factors in eastern Montana often offset management plans. Therefore, we suggest that each RAC should consider incorporating the following concept into their discussion of standards: "natural resource limitations and naturally occurring events (e.g., sever drought or insect infestations) may prevent full attainment of standards". This statement currently appears on page 63, in the discussion of implementation assumptions and guidelines.

Response: The RAC did consider the effects of drought and other environmental factors in their discussion of Standards. Standards must be a clear statement of the levels of physical and biological condition or degree of function required for healthy, sustainable rangelands. Disturbance regimes such as drought, fire, climatic events, geology, the natural historic range of variability and the potential of the area are considered when assessing standards for rangeland health.

90. **Comment:** Most proposed guidelines include general statements and are appropriate for a BLM district or regional level. However, some are too specific. For example, guidelines should not contain anything about utilization limits, slope, distance to water, differentiation between natural and management-induced streambank alternation, diverse age classes, or anything else that cannot be quantified or is not based on published research. It is inappropriate to use rigid utilization or residue limits to prescribe grazing management or to set stocking rates. Such decisions should only be based on monitoring.

Response: Guidelines developed by the RACs were slightly modified from the State of Montana Agricultural Best Management Practices for livestock grazing (grazing BMPs). This was a four year effort by representatives from the private livestock industry, university, state and federal management agencies and conservation groups to come up with livestock grazing practices that would consider the resource values and the livestock industry's needs.

The grazing BMPs contain such items as utilization limits, slope, distance to water, differentiation between natural and management-induced streambank alteration and diverse age classes because these are important items to consider when developing and monitoring the success of grazing management plans.

91. **Comment:** Most of the Standards include the term "are in or are making significant progress towards". Not only

does this recognize the importance of trend, it also encourages the implementation of additional monitoring. Thus, inclusion of the concept, "making significant progress towards" increases the utility of the standards.

Response: The wording "making significant progress towards" has been removed from Butte RAC Standards #1-#4, Lewistown RAC Standards #1-#4 and Dakotas RAC Standard #3 and #4. Refer to Chapter 2 of this final EIS.

92. **Comment:** The standards do not define any needed protection parameters. It is not clear how grazing activities that negatively impact the various natural resources will be controlled. The standards actually read as objectives or guidelines, they do not specify the criteria to be measured and the thresholds that will be allowed via the ROD. Regional EIS can have specific standards with measurable criteria so that they can be attained. (i.e., INFISH EA). The DEIS has failed to adequately develop any meaningful standards to protect the various natural resources within the analysis area. The FEIS should change its current standards to read as objectives. Then each of the objectives should have standards developed to show the public and the decision maker that the objectives can either be reached or maintained. To understand the biological and/or physical condition or function that a standard has been developed for, the criteria must be disclosed in the EIS...achievement of meeting standards is usually based on monitoring. Monitoring is requisite to determine if the standards are adequate. The DEIS failed to list the parameters, the measurement techniques, the monitoring that is required (frequency and intensively) and the thresholds that cannot be surpassed for each of its vague standards.

Response: It is not appropriate to establish site-specific measurable criteria for the standards at a statewide or regional level.

Quantifiable objectives required to obtain the Standards will be established on a site-specific basis and implemented through terms and conditions attached to livestock grazing permits and licenses if necessary. These will be such items as utilization levels of riparian or upland vegetation, seasons of use, frequency of grazing, streambank alteration limitations, etc.

The BLM will utilize the indicators as criteria to determine if the standards are being met. We will utilize mainly qualitative assessment techniques that have been field tested and determined to be effective in assessing the standards.

93. **Comment:** Miles City Standard #5: This standard is not applied to the Lewistown District, Butte District of the Dakotas. These areas should be subject to the same standard.

Response: The proposed Standards and Guidelines were developed in partnership with four Resource Advisory Councils (RACs) in Montana and the Dakotas. Variations between States or regions is acceptable and very likely appropriate. Each State or region must consider local needs and input, including RAC recommendations to ensure a useful and acceptable product. Within the three state area of Montana and the Dakotas the standards are very similar and were therefore analyzed as one alternative in the Environmental Impact Statement.

94. **Comment:** "Significant Progress Toward" is too much of a judgement call.

Response: The wording "making significant progress towards" has been removed from Butte RAC Standards #1-#4, Lewistown RAC Standards #1-#4 and Dakotas RAC Standard #3 and #4. Refer to changes made in Chapter 2.

95. **Comment:** RAC should form a sub-committee to deal with grazing issues and allotment management plans.

Response: This comment refers to site-specific planning and does not relate to the development of Standards and Guidelines.

96. **Comment:** The Butte RAC has several preamble comments, what consideration will the intent of this preamble have in the agencies consideration and implementation of the S&Gs in the Butte District? Will this have an effect in other districts?

Response: The Butte RAC included preamble language in their S&Gs in order to ensure a full range of understanding and application of the Butte Standards and Guidelines. This language is a part of the S&Gs and will be considered when implementing S&Gs. Some other district RACs have included similar language as well.

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APPENDIX K
BIOLOGICAL OPINION

United States Department of the Interior

FISH AND WILDLIFE SERVICE

ECOLGICAL SERVICES
100 N PARK, SUITE 320
HELENA MT 59601

97 APR -2

March 31, 1997

MEMORANDUM

To: State Director, BLM, Billings, Montana

From: Field Supervisor, Montana Field Office, Helena, MT

Subject: Biological Evaluation for Standards for Rangeland Health and Guidelines for Livestock Grazing Management.

The U.S. Fish and Wildlife Service (Service) has reviewed the subject March 14, biological evaluation. Based on information contained in the biological evaluation and the DEIS on Standards for Rangeland Health and Guidelines for Livestock Grazing Management, the Service concurs with the Bureau of Land Management's determination that the proposed standards and guidelines will not affect whooping crane or American burying beetle. The Service also concurs with the Bureau's determination of a positive affect for pallid sturgeon, bald eagle, peregrine falcon, gray wolf, grizzly bear, black-footed ferret, piping plover, least tern, and Ute ladies' tresses. Since no adverse affect to listed species will occur the Service has determined, pursuant to S402.13(a) of 50 CFR, that formal consultation is not warranted.

DMC

cc: Field Supervisor, FWS, ES, Bismarck, ND
Field Supervisor, FWS, ES, Pierre, SD
Billings Suboffice, FWS, ES, Billings, MT

APPENDIX L
LETTER OF CONCURRENCE

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Montana State Office
222 North 32nd Street
P.O. Box 36800
Billings, Montana 59107-6800

IN REPLY TO:

6500 (923)

March 14, 1997

Memorandum

To: Field Supervisor, U.S. Fish and Wildlife Service, Helena

From: Deputy State Director, Division of Resources

Subject: Biological Evaluation for EIS

On February 2, 1996, we requested a list of threatened and endangered species from your office for the preparation of an Environmental Impact Statement (EIS) on "Standards for Rangeland Health and Guidelines for Livestock Grazing Management." On February 29, 1996, you sent us the following list:

whooping crane
American burying beetle
bald eagle
peregrine falcon
black-footed ferret
piping plover
least tern
pallid sturgeon
gray wolf
grizzly bear (inadvertently left off the list)
Ute ladies'tresses (added later)

We have examined the effects of the proposed action and have reached the following conclusions:

All existing land use plans in Montana have received concurrence from the Fish and Wildlife Service with a finding of "no adverse effects", or "may effect positively" for all threatened and endangered species. There are no proposed changes that would negatively effect any species considered in those documents.

There would be no effects from the proposed action to the whooping crane or American burying beetle. There may be a small, beneficial effect on the pallid sturgeon. However, it is likely to have no quantifiable, significant effects.

The bald eagle, peregrine falcon, gray wolf, grizzly bear, pallid sturgeon, black-footed ferret, piping plover, least tern, and Ute ladies' tresses may be effected positively.

If you agree, we would like a letter of concurrence on these determinations. To meet our timeframe for publishing the final EIS, we would like your response before May 1, 1997, if possible. If you have any questions, please contact Dan Hinckley at 406-255-2928 or Sandy Brooks at 406-255-2909.

Thomas P. Lonnie

cc:
Denny Christopherson, FWS, Billings
923:Hinckley:jf:3/12/97:x928:CONSULT.LET

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